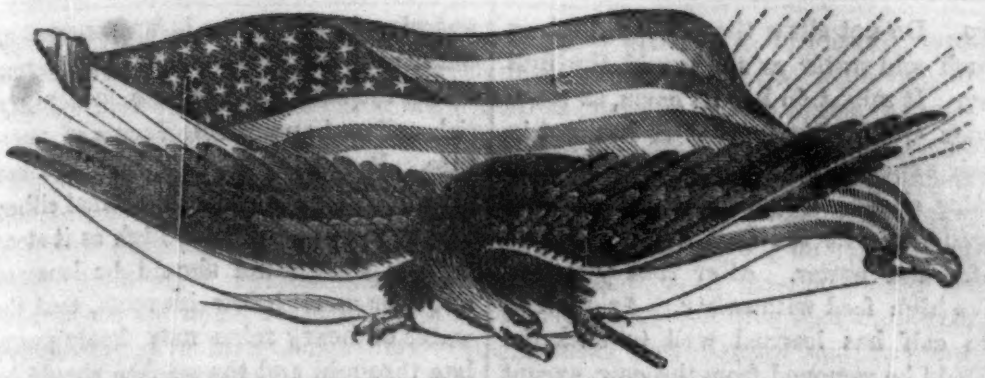

AMERICAN FARMERS' MAGAZINE.

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Agricultural.

HINTS TO YOUNG FARMERS.

Of wintering stock we have said so much in former numbers, that we need only touch upon the subject, important as it is, in this place.

In estimating the work for April, see that you do not lose the benefit of your former care and labor and cost of keeping on stock, by neglecting them in the last stages of winter. It is bad policy to let them lose flesh in December, when a long winter is before them; but it is hardly better policy, not to carry them through well when you have brought them in good condition into April.

Let the working oxen be so fed and cared for as will make them strong to labor. "Much increase is by the *strength* of the ox," not in the number of the oxen. Some farmers keep too many working animals, but do not keep them so as to develop the greatest strength. It is cheaper to manufacture a given amount of strength from a smaller number of cattle, fed and cared for in just the way to make them strong, than from a larger number enfeebled by bad treatment. How often have we seen a farmer in the last days of April plowing after cattle with tongues out, lolling, almost ready to drop down and die in the furrow, making precious little headway in the business of the season; and then we have seen his next door neighbor, in an equally sunny exposure, on equally hard soil, turning a deeper and a better furrow, whistling a merry tune as the heavy soil rolled from his share, and his oxen in such pluck that they would almost have whistled in concert, if they had possessed organs for the purpose.

Give the cattle that are to do your spring and summer work plenty of good hay and a little Indian meal, or a few roots. Their food should be of such a kind that they can consume it quickly, and lie down to digest it and rest themselves. Observe the effects of the food you give on the alimentary canal, and so apportion it as to keep them in proper condition, neither bound nor scoured; and their strength to labor and to endure the sudden change of our climate from winter to summer, will be greatly improved. Your milking cows will require special care at this season. Corn meal should not be given immediately after calving. It is too inflaming. Rye meal or oat meal is safer for the first day or

two. Do not allow the cow to drink as much cold water as she would the first day. It might do her no harm, as thousands would testify that it has not in their experience, but is is safer to give water slightly warmed. Good hay and tepid water for the first day or two are safer and better. After that you may give high feed with safety. As soon as the calf has learned well to suck, he should be removed from the cow, except at regular intervals, say morning and evening, that the udder may have time to be fully distended and the teats to be healed. By judicious management now the calf will be worth more at six weeks old, and the cow will produce more milk through the whole season. Ewes should be so fed and cared for that their lambs will be fat early; and if you have cattle designed for beef, the earlier you can have them ready for the butcher the better, because they then, taking one year with another, bring a larger price; and if sent off early they leave more feed for the rest of your stock.

Now is the time to transplant trees. If your premises are not ornamented by a reasonable number—not an over-dose to cut off the prospect and dampen the buildings—of shade trees, do not let this spring go by without providing for the beauty and comfort they afford. It will be but little hindrance to your more important business, to set a dozen shade trees. Take them up with a good many, but not very long, roots. If any of the roots are badly mutilated, cut them off with a sharp knife. New rootlets will very soon start, if you set them well, filling in carefully with a fine top soil. No strong manure should be added. If the soil is decidedly meagre, a few shovels of garden soil would be a valuable addition. Let the tree stand at least as high as it stood before; and in order to keep it firm in its position, tie it to a stake. Apply very little water at the time of setting—none unless the ground is quite dry. Four trees are injured by over-watering to where one is by the want of water at transplanting. What the tree wants the first summer is a moderately rich soil and an equable degree of moisture. It should be neither baked nor drowned; and to secure it against either, it should be set quite as high as it stood before; the ground should be loosened a foot or more below its roots, that the water of heavy rains may freely percolate through, and the surface should by all means be mulched, to prevent evaporation. The cost of setting a dozen good trees, in the best manner, might be about twenty dollars, to a retired merchant with money enough, and a plenty of lazy fellows around lying in wait for his coin; but to a resolute farmer it would be but a trifle. With a hired man and a boy, and a horse and wagon to bring the trees from the wood, he would almost do it before breakfast in the morning, or after an early supper in the afternoon. The trees would benefit his place as much as they would the fancy man's, but would not cost him one-tenth as much. An important advantage that the farmer has over others for ornamenting the grounds about his house is, that he has all the means for doing it efficiently and economically.

Have you all the fruits, large and small, which are suited to your location? If not, now is the time to be providing for the future in this important respect. Beginning with the smallest;—currants, gooseberries, strawberries, raspberries, blackberries, quinces, peaches, cherries, plums, and pears, are really worth more than it costs to have them in abundance; and apples are worth quite as much as all the rest. The farmer never need fear the want of a market for apples, for he has a home market; and if he will cultivate a few summer, more fall, and still more winter apples, there can be no loss, even if the home market is over supplied and he has to throw them to his cattle. As with shade, so with fruit trees, the farmer can produce them more advan-

tageously than any one else, and he can always make the fruit worth its cost or something more to be consumed at home, giving the surplus above the family wants and the poorer qualities to his stock, and not forgetting to make friends by sending portions to such of his neighbors as have more children than fruit. Children are apt to grow up fast friends to those who give them fruit. We remember a case in point. There was a man in the school district where we grew up, of tremendously coarse features, and hard, stern aspect; but he had more fruit than all the rest of the neighborhood. Wherever he found us he gave us fruit. Sometimes it came out of a basket, sometimes out of a deep, wide pocket, but oftener in the form of a permit to go into his orchard and get as much as we could eat and carry off. His stern features were very amiable in our young eyes, and but for hearing the remarks of strangers about his rough visage, we should probably never have suspected but that he was a downright pleasant faced, handsome, good looking man. He looked well enough to us, and we never shall forget how he looked; and we say, therefore, *from experience*, that there is no better way of making fast friends of the children, and thus securing a pleasant remembrance for ourselves, than to have a plenty of fruit and to be pretty liberal with it. Some may think this *will not pay*, but then we have no sympathy with that sort of reasoning.

Much attention should be given at this season to the manures, not so much to prevent their waste by evaporation, for there is little danger of this till the weather is warm and the yard dry, but to apply them so as to produce the best results. If you will throw the yard and stall manure into heaps, and mix with it swamp muck for a divisor, it will ferment. First the excess of water will be given off, rendering the mass from 25 to 50 per cent lighter to remove, and thus the labor saved in carting will be nearly enough to balance the extra labor of throwing up and composting.

But it is not well to let the fermentation go too far, as then the nitrogen will escape in the form of ammonia. When you throw the manure into heaps, there is no ready formed ammonia in it. But the nitrogen and hydrogen are there, and by a fermentation carried too far, ammonia is formed from them. As soon as formed it combines with carbonic acid, which is also a product of the fermentation, and passes as volatile carbonate of ammonia into the air. The loss to a manure heap, if suffered to ferment long with no admixture of clayey or peaty matter to retain the ammonia, is very great, amounting in extreme cases to half its value.

But for manure to be used for the spring crops, the main object of composting and partially drying, is to lighten the labor of its removal, and more especially to bring it into a pulverulent state, that it may be spread more evenly and better incorporated with the soil. Few realize how much of the effect of manure for the first season is lost for the want of a proper admixture with the soil. A lump of manure here and a cubic foot of earth there is not the same thing for a crop as if the two were finely and evenly mixed. There is no possibility of working the two together too much for the good of the crop. The question is how to mix and incorporate them with a moderate consumption of time and labor, and if the manure is rendered somewhat pulverulent by composting and partial fermentation, the labor of a tolerably equal diffusion of it in the soil is lessened.

As regards the appropriation of the different manures to particular soils and crops, not much, we fear, has yet been said, or can be, that is sufficiently practical to be of much value. In the present state of knowledge on this point, the farmer can not do much better than

to mix the different kinds of fertilizers about his premises as much as can be done without too great an increase of labor, that the weak points on some may be made up by the corresponding strong points in others. But for the extra labor, we would wish every species of manure on the farm to be mixed and wrought into a perfectly uniform mass. This would embrace the excrements of all kinds of stock, the night soil, the soap suds, sink washings, and wastes of every kind, from cellar to garret, and from the street to the farther end of the barn-yard. But as this is not practical, at least not so as our farm buildings are now mostly constructed, we would use a discretion in the appropriation, to a limited extent, for instance, to use fine manure for top dressing, such as would settle down among the grass roots, instead of lying up loosely to be dried up by the sun and wind. A fine manure, that falls down among the roots and comes in contact with the ground, gives its ammonia to the soil; one that is coarse and lies above the grass gives it to the air. The ammonia generated from manure used in top dressing, if not seized upon by the soil, it is true, is not lost out of the world, but it is mainly lost to the farmer on whose land it is generated —goes into the general stock of aerial plant food and is very widely diffused. We would, therefore, advise that top dressing, which in some cases, in many even, is a wise course, notwithstanding all that has been said to the contrary, should be done with finely pulverized manure, spread evenly, and brought as much as possible into actual contact with the soil, and if the application can be made just before a long rain, to wash the strength of the manure into the soil itself, so much the better.

There may also be something gained by selecting the warm, quickly acting manures, as that of the horse stall, for crops which you specially desire to bring forward early, and applying the colder manures, as from the cow stall and the pig pen, and the yard generally, to crops on which a more permanent influence is sought. Not only the suds, &c., collected about the sink-run, but all the soil impregnated with it is valuable for top dressing, often producing better results in the grass crop than so much green manure from the barn. The scrapings of the chip-yard and wood-house are also valuable. The coarser parts, as large chips and blocks of wood, should be saved for fuel. The smaller portions may be advantageously burnt by throwing them into a large pile, and giving them time to smoulder away into ashes, charred wood, soot, and the like. In this state, together with the scrapings of the wood-house and yard, they make a fine and valuable top dressing.

Wood ashes contain nearly all the ingredients of our cultivated crops, potash being the most valuable, and lime the most abundant ingredient. Consequently they are valuable for all soils not abounding in both potash and lime, and these are almost too limited to form an exception. We advise the old farmer to note carefully his experience with ashes, and not to sell them till quite sure that the soap boiler is giving more than they are worth for his land—a thing which we believe will rarely happen; and to the young farmer we would say, do not sell your ashes at any price, till you have fairly tested their value for your land. In ninety-nine cases in a hundred the farmer who sells his ashes is a loser by it. By reason of the potash they contain, they are admirably adapted to the potato crop, as also to the grape vine, and to nearly every kind of fruit; and by reason of the large per cent of lime, they are specially favorable to the apple tree, and to clover and peas. Suppose a field is to be cultivated this year with potatoes, next with peas, and then to be followed by clover, no manure could be so appropriate as ashes—the potash, easily soluble and quick in action, for the

potatoes; the lime, insoluble and slower of operation, for the peas and then for the clover, as these last are peculiarly lime crops, and as the action of lime is lasting.

Leached ashes, as a part of the potash has been taken out and considerable lime added, would seem more suitable for such crops as require a good deal of lime, as apples, peas, clover; while unleached ashes might be expected to produce more favorable results on the potash crops, as potatoes, tobacco and grapes. There is policy in manuring with reference mainly, but not solely, to the first crop. A plan for each field should be adopted, and the requirements of the after crops should come in for a part of the farmer's consideration, inasmuch as a quick return is desired on the one hand, while the permanent productiveness of his field is not to be disregarded, nor its preparation for future crops by present management to be wholly overlooked.

Plaster is condemned in many regions under an impression, correct it may be in some cases, but generally incorrect, that "it does no good there." Unless you know absolutely, that plaster is ineffective on your land, use a little of it with your farm manures; sow it on your young clover, and apply from 80 to 100 lbs. an acre to your pastures. More than half of it is sulphuric acid and the rest is lime. These are the very elements that clover is made of. Plaster it is true is but slightly soluble. It requires about 500 lbs. of water to dissolve one of plaster. But the rains of our climate are sufficient to dissolve 80 or 100 lbs. of it on an acre in a year, and it would take very strong testimony to make us believe that so much as our rains will dissolve is not beneficial to any crop, and particularly to clover, corn, potatoes, and other crops in which lime and sulphuric acid abounds. We believe that many an old pasture, now producing only wire grass, will grow white and red clover, if fifty cents' worth of plaster be applied each year to the acre, or, what some might prefer, as less laborious, one dollar's worth once in two years.

As planting time is just at hand, we will say to the young farmer, plant your potatoes as soon as the ground is in good condition. You should have them in the ground before our next number will reach you. It may be that this year the early planted will rot and the late planted escape. No certain prediction can be given; but all experience goes to show that the early planted are the safest. And here let us say, do not apply strong, nitrogenous manure (such as contains much urine) to this crop. Carbonaceous composts (such as contain much vegetable matter—straw, leaves, etc., but half decomposed) are a safer application for potatoes, since subject to the rot; and do not fail to give them ashes, to supply the requisite amount of potash. A compost of four bushels of ashes, two of lime, one of plaster, and a half bushel of salt, is a good prescription for potatoes, to be put at the rate of a small handful in the hill, not compactly at one point, but considerably scattered. If you omit the salt, it will be no great matter, nor do we suppose the plaster to be very important, nor would we stickle about the lime, as the ashes contain that largely, but stick to the ashes as the main thing; and if you use all, in about the proportions we have named, be sure and throw the compost over a considerable space in the furrow, and then cover the seed to a good depth, not less than four inches, as otherwise you may be in our hair next fall, complaining that the heating effects of our prescription killed your seed and you had no crop. We have known this to happen, where the compost was placed in a small compass, the seed put in it and but slightly covered. If the weather is dry and hot after planting, the danger is the greater; but with proper care in the two respects mentioned, there will be no danger, whatever the weather after

planting may be. We have never known potatoes to become diseased where the foregoing mixture was applied, and that while in neighboring fields nearly the entire crop was destroyed. We do not offer it as a specific, but we believe that it greatly improves the crop in quantity and quality, and diminishes, if it does not wholly remove, the danger from disease. It is, however, mainly to the ashes, and not to any empyrical compounding of other substances that we ascribe the good effect. The potato is a potash plant, and it can not develop itself vigorously without a plenty of that ingredient.

The potato should be covered deeply; as soon as up, it should be weeded nicely, but not hilled; early after the weeding, say not more than fifteen days, at any rate before the tops begin to fall, it should be slightly hilled, and then let alone till harvested. It is worse than labor lost to make large hills around potatoes, and to hill them more than once is folly. It only causes new setts, and increases the number in a hill, without increasing the weight, and that with a decided injury to the quality.

Of Indian corn, unquestionably the most important crop for this country as a whole, we want to say a great deal, but our next number will be in time for that. Only remember, before disposing of your manure for other purposes, that corn is a gross feeder—will devour a good thick turf and almost any manure you choose to put with it; and in our next we will give you some hints on the corn crop, which, if you think and act for yourself, as every farmer should, following nobody's advice till he sees its correctness, you may turn to a good account.—Ed.

THE AIMS, SPIRIT AND VALUE OF THE AMERICAN FARMERS' MAGAZINE.

One who is entirely unknown by us personally, and who has been a reader of this magazine only since our connection with it, reports to us that he has been so well pleased with it that he *very readily* complied with our request accompanying the January number of this year, to the effect that all old subscribers, and all who received that number, should, if they approved the work, pass the word round among their neighbors, and help us to double our list. He writes us that he sent the January number to an intelligent and enterprising farmer in a distant State, "one whose patriotism takes mainly the direction of a very thorough devotion of his energies to the promotion of the interests of agriculture and agriculturists in this country," and that he forwarded by the same mail a letter to this friend, giving him the reasons which had led to the sending that number, and asking his attention to its spirit and tenor, its aims and contents. He has sent us the substance of that letter, remarking as follows.—Ed.

"I have sent you the substance of the letter which I wrote to my friend when I sent him the January number of your magazine, thinking it quite likely that others might be led to do something similar, and call the attention of their friends to the merits of the magazine, either by sending a single number as a specimen, or by ordering it sent to them for a year in the way of a present at the commencement of each month. Your modesty may revolt at publishing any commendations of your work, but as the passages of my letter herewith sent contain nothing but "words of truth and soberness" from one friend to another, and were intended originally merely to point out to that friend a publication which I thought he would find interesting and instructive, without any reference to the interests of its editor or publisher, I hope that any reluctance you may feel will yield to these and similar considerations, and that many may be induced to follow the example and submit your work to the examination of

their friends in one or other of the ways which I have named."

The considerations suggested by our unknown correspondent having prevailed over our reluctance to occupy any of our space with what might be construed as self-praise, we submit for candid examination the following passages of the letter which accompanied the sending of our January number to a friend, as stated in the foregoing paragraph.—Ed.

"I have used the liberty of sending you the first number of an agricultural journal, (which in one sense is a new one, though more strictly a continuation of the *Plough, Loom, and Anvil,*) because I think you will find it such a publication as you can heartily approve, and such as you would like to countenance and support. Its editor is not wholly a stranger to you, as I have seen his work entitled "*The Progressive Farmer*" in your library, and as we have had something to say in our correspondence in regard to some of his letters from abroad, published in *The Country Gentleman.* The perusal of that book and of these letters has doubtless left on your mind an impression of a soundness of judgment and a comprehensiveness of views, not possessed by every writer or even every editor.

"In addition, however, to this somewhat rare qualification, you will find indications, I think, in the course of this single number of his magazine, of his profession of several other qualifications for the production of a first-rate journal for the use of farmers and their families. Even on the very first page you will catch a glimpse of the spirit and aims which characterize the *American Farmers' Magazine.* You will perceive that while it aims at promoting an increase of the material wealth of the readers, it neglects no opportunity of making additions to their intellectual pleasures and treasures, or of advancing their children in knowledge, goodness, and preparedness for a life of usefulness and respectability.

"You will perceive, also, here and there throughout the editorial notes and articles in this number, that the editor is actuated by an appreciation of the importance of agriculture, which rises to the fervor of an enthusiastic devotion to the honor and interests of all who are engaged in it. He avows his belief that agriculture must be honored in the hearts of all men, 'if a higher civilization is to dawn on mankind, or if Christianity is yet to have a more perfect work.' You will see here and there proofs of his sincerity and earnestness in desiring and endeavoring to redeem farm-work from the stigma of being merely a business for the *muscles* at the expense of the *mind*, and to elevate it to the dignity of a concern that will make both mind and body strong and active.

"Firmly convinced that in farming we are not at the end of all improvement as yet, he manifestly endeavors, by stimulating the energies of men of science, practical farmers, and mechanics of ingenuity, to aid in the introduction of those improvements which will surely relieve the severity of toil, and elevate the farmer to a higher position in society. In conclusion, you will see that the aim of this work is to contribute, not only to the material prosperity of farmers, but also to the happiness of their homes, and to their intelligence, influence, elevation, and respectability as citizens and members of society at large."

* *

Of our ability to carry out successfully the high aims which this writer ascribes to us, we may not speak, and we shall perhaps be blamed for allowing another —one many hundreds of miles from us, whom we have never seen and who knows us only through our writings—to speak in these pages; but, as he speaks only of our *aims*, and as we are deeply conscious that these are such as he describes, we admit the article, with some

hesitation, and take the liberty to say, that if others of our readers, who approve our course, will copy the example of this writer, in making this work known to their friends, now at the beginning of the year, they will do us a substantial favor, and we will not be ungrateful.—Ed.

THE RED CATTLE OF NEW-ENGLAND.

We continue the article on the Red Cattle of New-England, a portion of which was excluded from our March number for *want of room*.—Ed.

Anglesey Ox.—Anglesey is an island on the extreme north and west of Wales, south of Liverpool, connected with the main land by a chain bridge. Ten thousand cattle a year have been bred on this island, and on coming to maturity driven to the eastern part of England to fatten for the London market. The Welsh cattle are generally black or dark colored, astonishingly hardy, vigorous, full of health, round barrels, elevated and well-spread shoulders, chest deep, forehead flat, horns rising boldly up, broad chimes, roomy hips, and are a race that put on fat early.

Wales has always been a remarkable country. The land of Cambria was renowned even before the days of the Romans. It is a mountainous country, looking right over into the Western Ocean, and is about one hundred and fifty miles long, and fifty broad. It contains twelve counties, and sends twenty-four members to Parliament from the counties, besides the borough members. It is the country to which the ancient Britons fled when England was invaded by the Romans, the Saxons, and the Danes and Normans, and in 1283 was the first time it submitted to a foreign dominion. The general face of the country is bold, romantic, with ranges of lofty mountains and extensive valleys. The cattle in this country have always been numerous, strong and healthy; in color inclining to the black. The stock is an original race far back in the annals of time, before any historical memorials appear. Pembroke, Glamorgan, Radnorshire, Flintshire, Monmouthshire, Montgomeryshire, and other counties, contain different herds, sometimes called distinct races. In many places the cattle are of all colors; by crossing it is changed to brindle, brown, red, bay and black, with white faces and bellies, or red with white faces and bellies.

We have spoken of the Glamorgan stock in our previous number, and we will only add the following relative to these, the Montgomerys, and the Herefords. No less than four counties of Wales border on the Bristol Channel; besides Hereford, Shropshire, Cheshire and Gloucester, are in its immediate neighborhood.

The American people in early times came very much from Wales, especially into Rhode Island, the southern part of Massachusetts, and the eastern part of Connecticut, bringing their cattle with them. The Welsh people have ever been renowned for their love of liberty and independence, and it is said that no less than thirteen members who signed the American Declaration of Independence in 1776, were descended from different families in Wales; in other words they were the descendants of Welshmen.

Glamorgan Cattle.—The Glamorgan cattle were originally esteemed one of the best breeds in England. They were of the ancient Welsh stock, but more or less crossed on the Devons. The old feeders in Leicestershire, Warwickshire, and Wiltshire were in the habit of purchasing these cattle for their stalls for fattening. The Warwickshire people have themselves long possessed breeds of cattle of a superior kind, which seem to have been a race of long-horns with a cross of the Herefords and Alderneys. George III. had a well selected stock of these Glamorgan cattle on his farm at

Windsor. Indeed the fattening qualities of these cattle and other Welsh cattle were proverbial. The best cross on this breed is said to be on the Ayrshire, of Scotland, producing a hardy animal, apt to fatten, a good milker, and when fed affording excellent beef. The color of these cattle was red and brown, with a small head, lively countenance, neck well arched, carcase round and well turned, good workers and docile.

Montgomeryshire Cattle.—This county is situated in the highlands of Wales; it possessed two distinct races of cattle, one from the hills, red, brindled and black; the animal was healthy, hardy, apt to fatten, and made a strong, light ox, quick at work, full of spirit, but the cows were said to be inferior milkers. The other race was found in the vale of the Severn River. The ox fattened readily; the color was brown with white under the belly, the horns slender, but well turned. The cows, when properly fed, were good milkers and made excellent cheese. This race is evidently a cross on the Devons and the old Welsh cattle.

The Severn River heads in the mountains of Wales; after running east into England, it then turns south and finds its way into the valley of the Bristol Channel, which was formerly the great place of embarkation of the Pilgrims to America.

The Hereford Cattle.—The Herefords originally were a brown, or red brown, with not a white spot about them. They originally had almost exclusive possession of the county of Hereford. This county lies along the extreme west of England, adjacent to Wales. These oxen were considerably larger than the Devons; they are higher and broader, heavier in the chime, rounder and wider across the hips, better covered with fat, eyes full and lively, forehead broad, good horns, long neck, head small, chest deep, broad and full, loins broad, hips wide, rump level with the back, barrel round and roomy, carcase deep and well spread, ribs broad and flat, flesh mellow and soft. These cattle fatten to a greater weight than the Devons—they are docile, of great strength, adapted for heavy work, rather active, generally not considered the best for the dairy; when crossed on the Devons they materially improve each other. The Herefords are said to be an aboriginal breed, and descended from the same stock as the Devons. When fattened the beef is said to be fine grained and beautifully marbled. The ox fattens kindly, and they are much esteemed in the London market. When a cow is inclined to give a large quantity of milk, the breeding qualities of the animal are lessened, and the form of the animal is deteriorated. They were considered one of the best breeds for graziers and butchers in England.

The Gloucestershire Cattle.—Gloucestershire is in the southern part of England, situated on the River Severn, up from the Bristol Channel, north of Wiltshire, and south-east of Herefordshire. This was formerly one of the best dairy counties in England. A great quantity of cheese was formerly made in this county; it is of two sorts—the single and double. The first was made of skim milk, or from a mixture of skimmed and pure milk. The double from pure unskimmed milk. The best cows have been known to produce 24 quarts of milk a day for seven months after calving. It is said that the original race of cattle in this county was small, of an indifferent figure, but were well adapted to active work in a hilly country. The color a reddish brown.

A cross on the old long-horns of Wiltshire produced a larger race, with a tendency to fatten. Crosses were made at an early day upon the Durhams and Yorkshire, and the old short-horns which produced animals of good milking qualities, remarkable for milk large in quantity and rich in quality; it is said that the Herefords and Devons were much

sought after for crossing. A great many of this race of cattle were brought into New-England, especially into the old Massachusetts colony in the county of Middlesex, and into the Plymouth colony.

Somersetshire Cattle.—Somersetshire lies east of the Bristol Channel, and north-east of Devonshire, joining the two. This was also a noted dairy county in England. The cheese of Somersetshire is celebrated for its good and rich qualities. The dairy farmers sell off their cows at the age of 12 years. The milk now begins to deteriorate and lessen in quantity. The original race of cattle in this county were the South Devons, but they were early crossed on the old short-horns and the Durham stock, producing one of the best breeds of milkers. It is said that the improved race are of a superior quality, and nearly equal to the short-horns in the quantity of their milk. This county, lying upon the Bristol Channel, supplied many cattle for the first New-England settlements.

Dorsetshire Cattle.—Dorsetshire, England, is bounded on the south by the English Channel, west by Devonshire, north by Wiltshire and east by Hampshire. The towns of Dorchester and Weymouth, in this county, lie right opposite to the islands of Alderney and Jersey, on the French coast, looking right over to Normandy and Brittany. The original race of cattle in this county were said to have been a race of South Devons, but crossed upon the Alderneys and French Cattle. The Durhams and Herefords were early brought into this country.

Dorsetshire has ever sent great quantities of butter to the London market, as well as cheese made from skimmed milk. It is one of the noted dairy counties in England.

It is said that the long-horns of Wiltshire were formerly crossed on the Dorsetshire cattle. This breed was early known and noted for two qualities—good for the milk and for the stalls. Many of the early Puritans came in from Dorsetshire to New-England; (the Dorchester people were almost entirely from this county.) The soil of this county was generally rich and fertile. The climate was rather mild and congenial. Old Dorchester was the capital of the county, while Portland was a seaport town of notoriety, as well as the towns of Weymouth, Bridgeport and Wareham. The people from Dorsetshire liberally supplied themselves with cattle when they came into New-England.

A modern writer declares that there is no breed of cows in England superior to the French cows from Flanders, Normandy and Brittany, for the quantity and quality of their milk, nor for the proportion of milk given for the quantity of food consumed; that the best cow in the British empire are the Alderneys; that a large number of heifers are sold annually into England, where they are in great request among the wealthy classes for the dairies.

Many of the early cattle brought into New-England were from towns along the English Channel, Bristol Channel, and the German Ocean. Falmouth was at one time a port of embarkation. Berwick, York, Plymouth, Weymouth, Southampton, Brighton, Portsmouth, Newport, Dover, Chelmsford, Colchester, Ipswich, Yarmouth, Norwich, Lynn, Boston, Hull, Beverly and Scarborough, were all maritime towns on the southern and eastern sides of England, and places of embarkation for the Pilgrims.

Derbyshire, Wiltshire, Shropshire, Oxfordshire, and Warwickshire Cattle.—These were a race of long-horns, strong, healthy animals, and when fed well in the pastures the cows were good milkers. The animal was rather raw-boned and stood high feeding well.

The Wiltshire cattle were esteemed some of the best in England. Many of these were brought into New-England by the first Pilgrims.

The Warwickshire cattle were nearly

allied to the Leicestershires; indeed the Leicestershires, Derbyshires, Oxfordshires, Staffordshires, Wiltshires, and Shropshires were all originally descendants of the long-horns of Craven and Cumberland. The long-horns were one of the strongest, healthiest, and hardiest race of cattle in England. This animal by a cross on the Holderness has made a strong, large, and vigorous race. The cow gives a great quantity of milk, and has become an excellent dairy animal.

The cattle from the Midland counties in England have ever shown themselves a strong, healthy and valuable race, and when transplanted to America easily become acclimated, and now furnish many of our best cattle for beef and milk. They were races of cattle that perpetuate themselves on the New-England mountains to very great advantage, making strong, large, healthy, and rather bony animals; but when come to maturity and fed well, produce some of the best beeves for market in New-England. They are all excellent cattle for heavy work. The short-horn stock are generally animals which give a large quantity of milk; but the milk is not very valuable for cheese or butter, and the cattle are generally not strong for work. They are feeble compared with the long-horns or the middle-horns. They generally put on flesh very quickly, but the cattle of this description do not furnish so fine or healthy beef as the long-horns. The middle-horns and the animals generally speaking belonging to the short-horn race, are not so healthy; they breed out easily and do not retain the good qualities of the parent stock for any great length of time. The people of the eastern part of England are aware of this; hence they are continually procuring droves and herds of cattle from Wales and Scotland, and from the mountain districts in England. Parties who read the proceedings of *English Agricultural Societies* will discover that the prize animals mostly come from or are bred in the hilly regions of England, or among the mountains in Wales or Scotland.

Many of the people in Amesbury and Salisbury in Essex Co., Massachusetts, about the Merrimac river, came from Wiltshire in the southern and western part of England. The first settlements were made here prior to 1640. They brought in with them at that time the Wiltshire cattle, which were the long-horns, crossed on the Alderneys, the Devons and the Herefords with occasion ally a strain of the Welsh cattle.

Salisbury in Essex county, was named from the old town of Salisbury situated in the south of England. The county of Wiltshire lies east of Dorsetshire and Somersetshire, and south of Gloucestershire. It is 53 miles long, and embraces quite a large territory.

While the inhabitants who first settled Andover, in the county of Essex, came from old Andover, in the county of Hampshire, bordering on the English Channel, opposite France, many of the settlers of this town came in direct from England, bringing with them their cattle, and among the rest a race called at that day, the Hampshire Ox. This animal was closely allied to the Sussex, was crossed upon the Alderneys as well as the South Devons and the Wiltshire long-horns, producing a large, strong animal, good for beef, work and milk; the color was generally red.

This part of England was formerly the resort of many of the early Saxons, who originated in the mountain country, in a region about the head waters of the river Elbe in the middle of Europe, in Saxony and Bohemia. Indeed we may go to the highlands on the continent of Europe, north of Italy, through Austria, Bohemia and Bavaria, for the race of cattle which prevailed in England in early periods of its history.

The best cattle are mountain animals, and they do not improve in health by being sent to the lowlands, marshes and plains for breeding and pasturage. The

town of Bilericay in Middlesex county, Massachusetts, was named from the old town of Bilericay, in the county of Essex in England. This is a beautiful, fertile and maritime county, bounded east by the ocean, south by the river Thames, which separates it from the county of Kent. In early times it was noted for its butter; latterly it is called the Epping butter, which it supplies in greater proportions than any other county in the kingdom, for the London market.

The old *Suffolk Dun Cow* was formerly much found here, as well as a race of short-horn cattle, imported from Holland and Belgium. They were good milkers, and when taken to the stalls produced great quantities of beef. The settlement began in this town as early as 1637; indeed many of the people in the counties of Essex and Middlesex, in Massachusetts, came in originally from the eastern and southern part of England, with their cattle. These cattle were generally good for the dairy; most of them were the middle-horns; a few of them were of the long-horns, some were Leicestershires, some were Yorkshires, and some Durhams, but not so many of the Devons and Welsh cattle were introduced into the *Old Massachusetts Colony* by the first settlers, as were into the New Plymouth colony, and into Connecticut and Rhode Island.

In looking at the statistics of Massachusetts at the present day, we find that Middlesex is one of the best dairy counties in the State. Worcester is the best, having produced 1,637,978 lbs. of butter, and 1,791,030 lbs. of cheese in one year. The stock of cattle in this county are the descendants of the races first introduced into Essex, Middlesex, and Norfolk counties by the first Pilgrims.

Berkshire county produced 1,262,845 lbs. of butter and 2,658,192 lbs. of cheese. The old county of Hampshire, Massachusetts, produced 2,445,289 lbs. of butter within the same period. This county includes Franklin, Hampden and Hampshire.

The cattle of Berkshire county, Mass., came in originally mostly from the Housatonic Valley, and from the western part of Connecticut, and also from the Hudson river, including a large share of the original Dutch or Holland stock. The cattle of Old Hampshire county came from the New-Haven and Connecticut colonies, and from Dorchester, which was at one time the head-quarters of a large emigration. The same remarks will apply to many of the cattle first introduced into Worcester county.

The old Alderneys crossed on the Devons, the Sussex ox, and the Wiltshire long-horns form a large and strong animal, among the best for beef and milk. Along with these came some of the long-horns from Cumberland, Northumberland and Leicestershire, England. Indeed Miles Standish, one of the original Puritans, and the captain of the band that first landed at Plymouth, Massachusetts, was born in Lancashire, England, and was an officer in the British army before he joined the congregation at Lyden.

The county of Worcester, Massachusetts, received a very large supply of its original inhabitants from the Plymouth colony, and subsequently from Middlesex and Essex.

The Massachusetts colony had imported by the year 1640 large numbers of cattle. There had come into the colony up to this period 21,200 passengers in about 298 ships.

The Puritans were at great pains in settling their colonies and grants. It had cost them by the year 1640, more than $1,000,000 for emigration to New-England. The people were mostly of high intelligence; they knew what good farming was, and what kind of cattle were necessary for their stock. Comparison and observation had given the eye of the Pilgrims the experience to discover and pick out the very best ani-

mals. Such were brought over by the early fathers.

The town of Medford, in the county of Middlesex, Massachusetts, was first settled by emigrants from Lincoln and Northampton counties, in the north and east part of England. Here were found the long-horns and the old Leicestershire cattle, as also many of the short-horn cattle.

Northamptonshire contained less waste land and more seats of the nobility and gentry than any of the other counties in England. The town of Northampton, England, has long been noted for its capacious markets, while the trade for boots and shoes manufactured in this county was very great.

The county of Norfolk, England, at an early day, produced great quantities of butter; while in the county of Lincoln the breed of cattle was larger than that of any other county in England except Somersetshire. Lincoln has ever stood noted as an agricultural county in England. The old Lincolnshire ox was a middle-horn. The county is a maritime county on the German Ocean.

The soil of Durham, East Yorkshire, Lincoln, Suffolk and Norfolk counties, England, is of the most recent formation, full of the remnants of exeuvia, from the ocean. Many cattle from these counties were transferred to the counties of Essex and Middlesex, Massachusetts, and were the originals out of which a portion of the dairy cattle introduced by the first emigrants into the old Massachusetts colony, and subsequently into Worcester county and the south part of New-Hampshire were produced.

The town of Springfield, Massachusetts, was first settled in 1635 by a colony under the old Plymouth grant in England. William Pynchon, Esq., was the leader of this settlement; he got his commission in England. The colony first came to Roxbury, Massachusetts. The cattle brought in by this colony were the old North Devons, the Herefords, and Welsh cattle crossed on the Alderneys; they formed an exceedingly fine race of cattle for the new world. The grant to this colony was a tract 25 miles square, lying on both sides of Connecticut river, and included the towns of Suffield, Southwick, Westfield, West Springfield, Old Springfield, Sommers, Ludlow, Long Meadow, and Enfield in Connecticut, embracing a very fine tract of country exceedingly fertile and well adapted to the growth of neat cattle.

Northampton, 20 miles above Springfield, was settled in 1653 by a colony from Springfield and Hartford, Connecticut. The land was purchased of the Indians. This tract was located along the west side of Connecticut river, embracing the towns of Northampton, Easthampton, Southampton, Norwich, and Chesterfield. The descendants of the old Devons and Alderneys, Herefords, Wiltshires and Welsh cattle were the first stock introduced into this region.

Hadley, on the opposite side of Connecticut river from Northampton, was settled in 1656 by a colony that came from Hartford, Connecticut, and also from New-Haven. This tract of country was also very large; it embraced Williamsburgh, Whateley, old Hadley, South Hadley, Amherst, Sunderland, Leverett, and Pelham. The New-Haven colony and Hartford colony supplied cattle which were the descendants of the North Devons, Herefords, Alderneys, the old Sussex ox, and many strains from the Welsh cattle. Occasionally cattle would come in to the valley of the Connecticut river from the long-horns of Wiltshire, Worcester, and Berkshire in England, as well as strains of the Leicestershires, the Cumberland and Lancashire long-horns. These settlements in the valley of the Connecticut soon extended to old Deerfield, Greenfield, Northfield, and ultimately up the river through New-Hampshire and Vermont to Canada. In passing up the valley of the Connecticut river from Long

Island Sound to Canada, a person will often see a race of long-horns apparently a progeny of the old Cumberland types. These cattle have large limbs, bones and carcases, the horns very large, stout and long. The animal when young appears rather coarse, but when grown attain an immense size, exhibiting an ox which produces the largest quantity of beef of any similar animal known. These cattle come to maturity rather slow, but they will stand higher and longer feeding in the stalls than any other race.

There is no country in the world that furnishes better well-fed oxen than the towns along the Connecticut river. The hills and pastures on each side of this noble stream are the most fertile of any in this or any other country, in grasses and feed for cattle while at pasture; and the broad valley of the Connecticut river yields hay, Indian corn, and other grain superior to any other in America, and in quantities almost beyond comprehension, while the climate is clear, cool, generally rather dry, and the most healthy for the animal races. New-England may be proud of her cattle as well as of her men.

In almost every part of Europe and England skulls of cattle have been dug up and found far exceeding in bulk any now known. There is a fine specimen in the British Museum. Such skulls have been found in the vicinity of the mines in Cornwall, England, showing types of the Devons, East Sussex, and Welsh cattle, as well as of the Scotch Highland cattle. Calves, when permitted to run with the cow, will suckle two years and longer. Mr. Pell, of the American Institute, killed a calf which had run and suckled two years; it then weighed, when slaughtered, 2000 lbs.

The largest cattle can only be raised by letting the calves suckle until they wean themselves; at about two years of age the teeth have now become a new set, the milking teeth fall out, and the animal is now able with its large, firm teeth to crop the grass and obtain a living for itself without the aid of its mother.

We violate the laws of nature when we wean the calves and feed them on skimmed milk, or undertake to control their feed; the stock now becomes stunted and dwarfish. There is no tampering with the laws of nature with impunity without producing injury, and breeders only want to follow those laws to secure the largest, the best, and the most profitable stock.

Whilst the lumbering business lasted in New-Hampshire, the breeding of large cattle was much attended to. Calves were allowed to run with the cows and suck at pleasure. Men were ambitious to be distinguished by the size and strength of their oxen. Bets were frequently made upon the exertion of their strength. The prize was contended for as earnestly as the laurels at the Olympic games. As husbandry has gained ground, less attention is paid to the strength and more to the fatness of cattle for the market. From the upper part of New-Hampshire great herds of fat cattle are driven to the Boston market. It is said that there are twenty cattle in New-Hampshire to one horse. (See 3d Vol. of Belknap's New-Hampshire, page 105.)

ALANSON NASH,
36 Beekman street.

DUTIES OF FARMERS.

THE following from the *Ohio Valley Farmer*, by Geo. Trowbridge, Camden, N. J., is the introduction to a longer article on the same subject, and it so abounds in truth and good sense, that we can not forbear to copy it:

Among the many duties which devolve upon farmers, there is none of higher importance, or to which is attached a greater share of responsibility, than that of affording to the rising generation *the means of instruction*, and the facilities for *cultivating the mind*. In is in vain that we talk of improving the soil and elevating the standard of agriculture in

this country, while the youth, the sons and daughters of farmers, are denied the privileges of education and moral culture—which every sound and thinking mind will admit are necessary to enable them to pursue their avocations with pleasure and profit, and to discharge in a proper manner their duty in the various relations of life.

The subject of education in schools is of vast importance to farmers, and may with propriety be discussed in an agricultural journal; but I intend in this article only to point out some of the errors and omissions of *duty*, with which many farmers are chargeable, in the education and training of those who are soon to enter upon the stage of action, and to whom the agricultural interest must look for its friends and advocates. Education does *not* consist solely in the knowledge gained at schools. The history of some of our most eminent men shows that individual exertion, when aided and encouraged by parental advice and aid, may be the means of acquiring a degree of knowledge and of reaching a position which the mere advantages of school would never afford. I here repeat, what we have often in effect said, that self-culture is more neglected among the farmers than any other class of persons. It is time that there was a reform in this respect, and we are happy in being able to say that there is evidence of a desire for agricultural reading, which pervades to some extent the youth of this country. It is the duty of those having the care of youth, so to encourage the first appearances of these desires, as to form permanent habits, and a disposition for investigation, which always leads to valuable results. The youthful mind is never inactive, and if it is thwarted from its laudable inclination, will be very likely to engage in the pursuit of objects which it would be wiser to avoid.

There is no subject in which the mind of young men can with more propriety be employed, than in the *improvement of agriculture*; and we think the judgment of our readers will coincide with ours, when we say that the surest means of leading the mind to an investigation of agricultural science, and the best means of accomplishing objects of improvement, is to place before them publications which have for their aim the good of the agricultural interest.

Often have we heard the boy of 12 or 15 years urge his father to subscribe for an agricultural paper, which would cost only a dollar a year, and promising to read it attentively, and in some instances to earn the subscription money by extra exertions, while the father would utterly refuse to allow him the privilege of storing his mind with information, which might be the means of adding greatly to his usefulness, and preventing him from acquiring habits of dissipation and idleness. And why is this refused? Simply because it will cost a small sum of money, while ten times as much would perhaps would be freely expended on objects which can be of no possible advantage to the youthful mind. There are hundreds of such cases, and we wish in a respectful manner to call the attention of such individuals to the subject, and to show them the *responsibility* which they have thus voluntarily assumed. Where is the man who is willing to stand in the way of improvement, by keeping, as far as his influence goes, the sons and daughters of farmers ignorant of the means of improvement which shall be extended to them in their youth? Every opportunity should be embraced to impress upon young persons the *advantages*, as well as the *respectability* of agricultural pursuits.

The above and much more, which we would copy if our limits permitted, is all sober truth. The greatest men that have blessed the world have been your practical, self-made men. They are men who have seized the home opportunities and made much of them.

Reader, just cast your thoughts around you, and see how many young men there are in your neighborhood who ought to have the reading of this magazine but do not have it. Some such you will certainly find. Go to them; tell them of its advantages; tell their fathers the benefits of such a journal for themselves and their families. We told you in our last, that as our January and February numbers are nearly exhausted, we would send the work to new subscribers the balance of the year, commencing with April, for $1. We will now go one step further; we will send it one year, from the first of April, for $1 each to clubs of twenty and upwards. Every

one of our readers can raise such a club if he wills it, at such a price. And now, reader, give us a push. Our motto is Onward. We want our farmers to have this work. We want their sons to read it, and to achieve a higher destiny in life for reading it, and they will if their fathers do the right thing—let them have it. Give it to them in their own name if they prefer. Young people sometimes value a thing more if it is their own, and this is all right and well. Let fathers order it for a son who is little inclined to inform himself, and, our word for it, that son will take a new turn—will be more inquisitive, less satisfied with low pleasures, and a safer hope and reliance for the old age of the parent. Will our readers carry out these thoughts, and see what they can do to give them a practical effect in their town or county? Every man is now our agent who will send us names, with the money, at rates stated in our Prospectus, and on receipt of the money we will acknowledge the same to him and to each of his subscribers, and will faithfully fulfill the contract to send the numbers. To say nothing of the benefit of such a work to an old farmer, at least 50,000 young men, not yet supplied with the most useful reading, ought to have it; and if our readers will just do up the business of a voluntary agency about home, such will be the result, and another result will be, that next year they and all others, in consequence of the large number required, can have the work for one dollar as it is, or for a little over one dollar, greatly enlarged.

UNDERDRAINING, IRRIGATION, ETC.

BY R. L. WATERBURY, M. D.

In 1851 I purchased a meadow of about six acres, consisting of two very different kinds of land. The upper part of it was composed of what geologists term drift or loose stone, with their corners worn off by attrition against each other, and deposited in a direction and inclination nearly uniform during some uncertain ancient period. The lower part, which was not quite so large, was composed of swampy ground underlaid by clay, and was very much the most productive. A mountain brook that crossed a corner of the upper part, suggested to me the idea of converting the dry hill side into a wet land like the lower part, and thus rendering it equally fertile. Accordingly, by means of sluices from the stream taken along the side of the hill, at a downward inclination of about the half of one degree, I managed to obtain a sufficient supply of water, but when applied instead of wetting the soil generally I found it to percolate almost directly down until it met the impervious lower strata, running along which it made its appearance as numerous springs at the upper edge of the naturally wet part of the meadow. During the same and the subsequent season I had occasion to subject some fifty acres or more of meadow land of clayey soil to irrigation with in every case a beneficial result; in some cases the annual growth of grass being more than quadrupled. From these experiments I drew the conclusion that irrigation to be of practical value must be practised on soils not too open, but which have enough plasticity of composition to prevent too rapid filtration through them, and that when practised on such soils as nature dresses with water, it is one of the cheapest and most effective means of improving them in fertility.

The water that was supplied to this hill side during the two years in which the experiment was conducted, was like all surface water, roilly, that is more or less charged with organic matter, and yet after the filtration, when it made its appearance in the springs, it was not only quite free from any such taste, but it had dissolved out and brought to the surface from within the hill such salts as rendered it *hard*. The extent of this ex-

periment and the time during which it continued, leave no doubt that the water under certain very common circumstances carries no organic matter which may be dissolved in it below a foot or so in the soil, while it dissolves and brings to the surface continually soluble substances from within the earth.

The water of irrigation is merely a substitute for rain, and consequently irrigation is most necessary, and of course furnishes the most striking results on such soils and such crops as feel drouth soonest. As the substances that compose plants must at first enter into their composition in a soluble condition, and as the solution from which they are revived by the action of the sun on plant tissue is exceedingly dilute, it follows that the growth of the plant is principally governed by the supply of moisture. It is the principal province of the laborious processes of tillage to retain the natural supply of water and furnish it to the plant as it is needed during the action of the sun. In the same manner that a cloth *wrung* is freed from moisture and refuses to absorb, so does a hard soil. The bed of a turnpike road is sooner dry than the neighboring plowed field. The surface of the earth stirred by the plow to the depth of six inches, will absorb and retain one or two inches of rain which will give growing plants a fair supply of water for ten days or two weeks of exposure to a bright sun. By increasing the depth of tillage to twelve inches, the risk of a longer drouth is avoided and a greater aggregate growth is secured, as there are less extremes of variation. It is in this way that deep tillage of land seems to effect so much benefit, and indeed it is extremely difficult to account for the well known benefits of frequently stirring the soil on any purely chemical hypothesis.

The supply of rain to the different countries of the earth, when not interfered with by local causes, such as ranges of mountains, will be found to correspond to the intensity of sunshine, and the same is generally true of any given place for the different seasons of the year. Thus, while we have some thirty-five inches of rain annually, the average fall in tropical countries is over a hundred, and two-thirds of our thirty-five inches fall during the hottest third of our year.

In countries that are thoroughly cultivated the greatest part of the rain that falls never passes into the earth more than a foot, being absorbed and retained to be exhaled again by the growing plants. Of that other part which passes down by filtration to appear again in springs, most of it is also evaporated from the land those springs irrigate, but a very small percentage finding its way to the ocean.

It has been frequently remarked in clearing away the forests of this country and superseding them by a growth of the grasses, that the springs become smaller and in some cases dry quite away at times, where previously they had been permanent, and also that the annual freshets in the streams do not rise so high as when the country they drain was wooded. To account for this we may refer to some late experiments in Europe that show that when soil is trenched to the depth of three feet there is no filtration, and that at less depths the plants growing in it can use more water during the season in addition to the rain than what drains away. Indeed common observation shows us that most plants growing on the banks of streams where they obtain an unlimited supply of water by upward filtration, are greatly increased in growth. Hence we may conclude that if in addition to culture so deep as to retain all the rain that falls we were to supply some additional water, it would increase the growth.

We are not to conclude from these facts that an unlimited supply of water

to a soil is all that is necessary to render it fertile; although a soil in this condition does give a much better growth than one in the opposite state of aridity. Water and air are both necessary for the decay of organic matter, and consequently for the supply of carbonic acid in the soil on which vegetative growth depends. It is probably by furnishing air as much as by removing water that underdraining produces its effects. It is a well known practical fact, that in those underdrains that are working effectually, a current of air is continually generated, and this draft is probably connected with the oxidation of organic matter in the soil.

If the processes of agriculture, then, laborious as they are, derive their principal value from the fact that they furnish a steadily continuous supply of water to plants; and if the fertility of a country may be judged of by its rain gauge; and if we have sunshine enough to use up all of our rain, and even more if it fell, then we ought to make such arrangements as would save the greatest possible amount of the water that annually falls, and leave as little of it as possible to run away into the sea. In the case of meadows, when we can not plow them annually, and when consequently the soil becomes very hard, so that they are the first to suffer from drought, every little rill should be scrupulously saved and distributed over the greatest possible amount of surface. The same is equally true of pasture, and even plowed soils may be vastly benefited by an additional supply of water.

SHOULD MANURE BE PLOWED UNDER DEEPLY?

B. N. French, Esq., of Braintree, Mass., referring to a statement of ours last month, in which we represented him as opposed to the deep plowing in of manure, and alluded to an experiment of his, writes us as follows;—

The case was as near as I can recollect as follows. I had planted a lot of sod land and found I had manure to spare. I decided to take up an additional strip of land on the side, of about 10 rods by 50 feet. At this time, 11th May, grass quite forward, I had some excellent manure offered me for sale, which induced me to try an experiment, which I had heard recommended, of putting the manure on the grass, and plowing it under; which I did by putting this manure on one end of the strip. I think this manured end was the best land. I plowed under a sod of about ten inches. Then all was manured alike and planted, but the crop, where manured under as well as on the top, proved no better than where it was manured only on the top, nor have I ever derived any benefit from it since. I am opposed to putting manure in deep, but have not ascertained the best depth. But as now advised, the deeper the soil is disintegrated the better, if it be well drained; and with my present opinion, I should prefer manure to be covered one and a half inch rather than three inches with soil. Light and air I consider essential to all vegetating roots. Trees are often set too deep. A covering of three inches on the roots of trees is abundant. But what depth seeds should be planted and manure covered (I mean with exactness) I am only able to give my opinion; but of this I am persuaded, there is no subject of more importance to the farmer, and, I might add, to the country, than the acquisition of all fertilizing matter to the soil, the safe keeping of it, and the most judicious application of the same.

Remarks.—We suppose that no exact rule can be given as to how deeply manure should be covered; that much depends on the nature of the soil; that if clayey it should be nearer the surface, only harrowed in; but that in a light, sandy, or gravelly soil, it may be covered deeper; and that in all cases it should be so worked with the soil that, if possible, it may permeate and mingle with the whole, from the surface downward,

as far as in that particular soil it is advisable that it should be sunk.

With regard to seeds it is manifest that those which are small, and which produce feeble plants, should be deposited nearer the surface; those of larger size, and producing powerful shoots, may be planted deeper; and then there is something in the nature of the seed itself to be observed, as well as in the condition of the soil. A chestnut will sprout best on a hard, gravelly soil, with nothing over it but leaves enough to mulch the ground and keep it moist. Corn will sprout more vigorously if buried in a mellow soil one, two, or three inches deep, according as the soil is heavy or light; and we suppose the best reason for covering potatoes four or five inches deep, is that the new potatoes may set at sufficient distance below the surface, and may grow there undisturbed, without the useless practice of making high hills.—Ed.

For the American Farmers' Magazine.

TOWNSHIP AGRICULTURAL ASSOCIATIONS—THEIR BENEFITS.

BY A WESTERN FARMER.

Mr. Editor:—About two years since some of the leading farmers of this place met and formed themselves into an Agricultural Association for their mutual benefit. The idea became popular, their meetings drew a crowded house, and most of the liberal minded, intelligent farmers soon became members of it. The results have been highly beneficial to the cause of agriculture in our community, even greater than were anticipated at first. The officers are a President, who presides at all our meetings, a Vice-president, a Secretary, a Corresponding Secretary, and a Reporter, who keeps the association posted in respect to the state of our principal markets from month to month. The meetings are held once a month. The exercises are an oration from some member appointed by the President at a previous meeting, and the discussion of some question or subject pertaining to agriculture, agreed upon by the members at a previous meeting. Every member is at liberty to offer his opinion upon the subject under discussion. Each speaker by the constitution is restricted to ten minutes, and when all who wish have spoken, each one is at liberty to speak again. At the close the President gives a synopsis of the arguments that have been advanced, and also gives his own opinion upon the question. The Secretary also makes a record of the arguments for future reference if desired. If the time of the meeting is not all occupied by the exercises mentioned, opportunity is given for the communication of any intelligence pertaining to the science of farming, or any experiments any individual may have made. A township fair is held in the fall for the exhibition of stock and vegetables; and in the winter for the exhibition of winter fruit, wheat, corn, oats, etc., at each of which meetings an address is delivered by some one previously appointed. Our fair the last fall was acknowledged by good judges to be superior to many county fairs, and the fruit exhibition in January was highly creditable to the place.

This brief notice has been communicated with the hope that other townships may be influenced to follow the example. Agriculture is one of the most noble employments—one that calls for the exercise of intellect as well as of manual labor. The old stereotyped method of farming which our ancestors practised, is, much of it, a relic of the past, to be forgotten amid the improvements of the present day. The age demands progress in this science as well as others. And for this thought, and study, and observation, and experiment are necessary. Farmers should be men of liberal and well disciplined minds, ready to break loose from the shackles of antiquity, and to think and reason for themselves—ready to investigate with candor the

opinions of others, though they may differ from their own. They should seek knowledge from every reliable source.

It is believed that from associated effort like that mentioned above, much good may result; at least such has been the effect here. An impulse has been given to farming in this place, that is seen and acknowledged by the community around. In this way much useful knowledge may be obtained. An individual who expects to take part in the discussion, will be led to study, to reflect upon, and to investigate the subject. And thus while preparing to impart information to others, a reflex influence will be exerted upon his own mind. It will be expanded, his stock of knowledge will be increased, and his views enlarged and rendered more liberal. Much information may also be derived from the discussion. New views will be advanced that will lead to reflection and research. Where mind is thus brought in contact with mind, new trains of thought will be awakened that otherwise would have lain dormant in the mind. Something may be learned from all, even the weakest member. There may be points to which he has turned his individual attention more closely than others, and concerning which he can impart information that may be useful. No one should excuse himself on the ground of inability. The result of experiments conducted by different individuals and under a variety of circumstances, may here be examined and compared, and from the comparison the intelligent, thinking farmer may deduce conclusions that will lead to the best practical results. And all may learn in conducting experiments, to observe minutely all the circumstances attending them, lest they be led into error. A spirit of emulation may also be awakened in the member that will lead to beneficial results. A man of any force of mind, while learning the success of his neighbor, will feel a desire to keep pace with if not to rival him. And the result will be, better stock will be raised, the soil will be better cultivated and yield more remunerative crops, his farm will assume an air of neatness, his home be rendered more inviting, and his income increased. When the community yield to the influence that goes out from such an association, it will become more intelligent. Agricultural literature will be diffused among them, and the varied publications of the agricultural press will be likely to supplant the light trash that has flooded the country. And as the mind is thus enlightened and expanded, old prejudices, that have ever been a bar to improvement, will give way. Men will no longer follow in a beaten track, and plow three inches deep because their grandfathers did, and use the oldfashioned tools that were in vogue in their childhood, but a spirit of improvement will be cherished that will give new features to the landscape.

Such associations tend to cherish a mutual interest in each other's prosperity. Here those engaged in the same pursuit are brought together from month to month, for an interchange of opinions, and to learn the views, and pursuits, and success of each other. An acquaintance is thus cultivated that binds them in closer connection. A sympathy of feeling and interest is produced among the members that tend to soften the rugged asperities of life, and to which the isolated miser is a stranger. Those who were before comparatively strangers form an acquaintance and become interested in each other's welfare. The barriers of selfish exclusiveness are broken down, and a liberal, friendly disposition prevails. Much more might be said upon this subject, but I leave it for abler pens.

EDINBURGH, Ohio, March 6, 1858.

SHEEP appear to be animals peculiarly adapted to the treatment by preventives, and if due caution be observed we need seldom be troubled with curatives.

POTATOES.

MR. EDITOR:—I notice in the last *Telegraph*, a request that some of your correspondents would give their experience in raising potatoes. If mine can be of any use, here it is. I usually put in about two acres.

Seed.—I use about ten bushels of seed to the acre; I think it best to change seed every three years; in selecting seed I take them as they grow, large and small, the large ones I cut in ten or a dozen pieces, being careful to have one or two eyes on each piece; the small ones I cut in half.

The Ground.—I commonly put potatoes where corn grew the season before; I cut the cudgels off in the winter close to the ground.

The Manure.—If I take out of the barnyard, I have thrown in a heap as it comes from the stables, in order to let it heat before hauling out, which I do early, and have it spread evenly over the ground. I put on a good coat of manure for potatoes.

The Signs.—I am aware there is a number of farmers ruled by the "signs" for planting this crop. My sign is, when I am ready, and the ground is in good order.

Planting.—When I commence, I plow round the outside, dropping the seed in every other furrow, about a foot apart, until I have it wide enough for the headlands. I then start a couple of lands, having four rows going on at the same time; by this way I economize time, as the droppers need *never* wait. The same way in gathering the crop.

Cultivating.—After planting I harrow the ground well; when they are up an inch or two, I give them another good harrowing; and as soon as they are large enough to go between the rows with a horse, I cultivate them twice before plowing, which I do with a light plow, just before the vines fall or the blossom shows itself. After this they require nothing more than to pull up the weeds as they appear.

Last season I planted three different varieties—the black, white, and blue Mercer; but the season was such that it was difficult to say which turned out the best, as the rot affected them all. I shall give them each another trial. The latter variety, however, will command the highest price and the most ready sale in Philadelphia. SIMON.

We have copied the above from one of the best agricultural papers that come to our office, for the sake of *agreeing* and *disagreeing* with it, and of thus enforcing some remarks already in this number on the same subject.

The writer's "sign" is a good one, "when he is ready and his ground is in good order," only let him be ready as soon as the ground is in order, for the experience of the few past years has taught us that April, unless on very backward ground, is the month to plant potatoes.

His selection and treatment of manure, if he would add to the heap before fermentation large quantities of well cured swamp muck, leaf mold, or headland soil, would be just the thing for the corn crop, but not for potatoes. This planting them in green, fermenting manure is one of the causes which, we believe, produced, and, if persevered in, will perpetuate the potato disease. This writer's potatoes rotted, and we think his experience valuable, as others may, and, if they are wise, will avoid his error with regard to manure.

With respect to seed, we would not plant very large potatoes, and if we could avoid it, would plant none very small, though we have obtained excellent crops, and have known others to, from the very smallest. As to quantity, ten bushels is enough, if they are large; eight bushels is quite enough if of medium size; and six is too much if they are small. There is no greater blunder than to make up in number what the seed want in size. A very large potato is equal to half a pint in measure or more. Suppose now you should plant half a pint of very small ones in its stead. In one case you might have ten shoots, in the other five hundred. Could so many obtain nutriment from one spot of ground? If we were to plant potatoes no larger than a chestnut, we would put but one in a hill, provided that one were sound, ripe, and sure to germinate.

Perhaps it is good policy to put potatoes after corn. Every farmer knows his own business, in some respects, better than any one else can; and he may have very good reasons, in a particular case, for planting potatoes after the corn crop. But we doubt whether it would do for a general rule. At times, and under peculiar circumstances, all rules yield to common sense. We have planted potatoes after potatoes ten years in succession, and got good sound crops all the time, and we would do it again in precisely the same circumstances. In that case our crops entirely escaped the rot the whole ten years, while for a large part of that time those of our neighbors rotted badly. This of course was not because we planted every year in the same patch. It was because the ground was warm, sweet, deep soil, well suited to the potato, and moreover because we manured it with ashes, lime, plaster, and salt, and left the vines to rot on the ground, a course which supplied the very pabulum the potato requires, and which left that ground after ten years better prepared for another potato crop than it had been before, as the experience of our successor showed, for without any manure whatever he grew a splendid crop the eleventh year, and we know not how many since.

We would not be too confident in any thing that relates to the cultivation of crops. The earth is 6000 years old, and man has been upon it all that time. Still there is yet more to be learned about agriculture than all that has yet been learned. We may not, therefore, be too confident, but still we believe we know something about this good, old fashioned crop, and we say: plant medium sized potatoes or rather smaller; those of the size of a butternut, if sound, hard, perfectly ripe, are as good as any; plant them on dryish, not very dry, warm, sweet soil. The land should be in good condition, but not as rich as for a corn crop. All nitrogenous, fermenting manures, as from the stables and the barnyard, should be avoided. Use the New-Jersey green sand marl, if you can get it, and no other manure, for that contains all that the potato wants, in addition to what is furnished by such a soil as we have described. A turf is on the whole to be preferred, but this is not essential. If you can not obtain the green sand marl, do not fail to apply the mixture we have before mentioned of ashes, etc., giving the preference for this crop to the unleached, because the potash is the most important ingredient in the potato plant, and this has been largely abstracted from the leached. The ground should be thoroughly mellowed six inches or more. Scatter the mixture, if you use it, somewhat, that it may not scorch the seed, and cover four or five inches. Our neighbor, Prof. Mapes, says six, and we are not sure but he is right. It is a good plan to harrow the ground over, with a many and short-toothed harrow, just before the sprouts appear. Let the cultivator be run through soon after they are up, and as often as you can afford afterwards, keeping the ground perfectly clear of weeds, and then, before the tops begin to fall, hoe them once for all, hilling but very little. It is nonsense to make hills of the size of a two bushel basket around the potato plant, and, unless the ground is wet, in which case it is not fit for potatoes, the high hilling does more harm than good.

We have said above that wet land is not fit for potatoes. There is one exception. Swamps, in process of reclamation, may well be planted with potatoes a year or two preparatory to being laid down to grass. If first drained, and if then the acidity of the soil is corrected by the application of ashes in the hill, they will often give large crops and of good quality. We have known swamps, before worthless, worked into the choicest mowlands, and the potatoes grown during the process to richly pay for all the labor. But as far as our observation has

extended, the soil, though before sour and cold, has been corrected of its natural acidity by draining and the application of an alkali, generally in the form of wood ashes, before a large crop of good quality has been obtained. We feel justified, therefore, notwithstanding this apparent exception, in saying that, wet, sour land is not fit for potatoes. It certainly is not, unless you correct its acidity by alkaline applications. On lands naturally sweet and but moderately moist and in fair condition, twelve bushels of the mixture we have recommended to the acre, will increase the quantity and improve the quality of the crop far beyond the cost of the ingredients. On land that is quite moist the amount may be profitably increased from 18 to 20 bushels to the acre; and in proportion to the moisture, we suppose the plaster and salt become less important; and on a partially reclaimed swamp, wood ashes alone are probably the best.

Four years ago a farmer came to our office for advice. He said he had six acres of land which had been broken the fall before. It was cold land, rather wet, and very rough, and consequently had been plowed very unequally, some to a great depth, other portions hardly plowed at all. He wished to plant one-half to potatoes, and a neighbor of his was to plant potatoes on the other half, to find his own manure, and to have the crop for cultivating the land. We told him we feared his chance would be poor, and that his neighbor would have a hard bargain; but suggested that if he would harrow thoroughly, furrow out, and put in the hill twelve bushels to the acre of a mixture of four bushels of ashes, two of shell lime, one of plaster, and a half bushel of salt, it would give him the best chance for a crop at a very moderate expense that we knew of. We remonstrated against the use of barn manure, and told him his potatoes would almost certainly rot if he used it on that land. He at first laughed at the small quantity. Twelve bushels to the acre seemed to him quite homeopathic. We explained that we did not mean it as a dressing to enrich the land, as by his account it was strong land naturally, but cold and yet uncultivated, that there was probably food enough in that soil for a dozen crops of potatoes, that it was in a dormant condition, would not act alone, but that the application we proposed was of the nature of yeast to set it at work, and at the same time afford pabulum for the crop to start upon, and that he certainly would not lose much by the experiment. In the fall he returned to our office well pleased, to report progress. He had on his arm a basket of potatoes, as fine as were ever seen, and said that he had cultivated precisely as we advised in every particular, and the result was 300 bushels of just such potatoes as those in his basket, not a large crop, certainly, but obtained at a very moderate expense. He had urged his neighbor to take a similar course with the other three acres; but he, after blowing off a tirade against book farming, and declaring that he knew more about farming than all the agricultural editors in the country, which by the way might be true, and yet their labors not be beneath his notice, carried on to his three acres green manure, to more than four times the value of the compost used on the other three. The result was that few potatoes grew, and what did grow were little, watery things, and nearly all rotted, while scarcely one rotted on the other side of the field, the land being, as was reported to us, (we did not see it,) equal. He gave most of his crop to some poor people for digging, and it was thought that they had a hard bargain in digging them, as he had in growing them.

For the Am. Farmer's Magazine.

AGRICULTURE.

BY A REFORMER.

From the earliest ages of man, we can not discover a single era, in which agri-

culture, as a science and employment, has received anything like its due appreciation.

Although historic facts plainly indicate that whole nations and empires, in a great measure, rest upon the stability and sterling worth which agricultural communities render to its people; and that wherever it has been neglected and discouraged inevitable ruin followed; yet many intelligent, and in many respects, useful members of society, are remarkably tardy to comprehend this obvious truth.

We may truly apprehend the vast amount of conservation which must necessarily be overcome to elevate the science of farming to the standard which it is destined to assume before the polity and government of our national greatness can be transmitted to future ages as worthy of imitation.

When the tilling of our mother Earth is viewed as the very basis and superstructure of a country's prosperity, the most salutary element for its advancement and perpetuation, the first signs of its ultimate triumph will first appear; although the knowledge essential to its success is not yet universally disseminated. The day is fast approaching when its few persevering votaries will realize the value of their labor, in exalting the noblest, most honorable, and most intellectual pursuit of man; and we, as a nation, should hail with joy the dawn of that day in which will be proclaimed the superiority of the vocation, and enforce for ever the power of its truth upon the minds of the people of all coming ages.

Labor is the pristine pursuit of man, without which we, as a people, would dwindle into supineness and decay; without which we could not support or propagate those natural laws, for the exercise of which we are constitutionally, providentially, and divinely intended; but heinously connive at the most flagrant violations of justice and humanity, of which we now, refined in all that is noble and useful, are so free to express our abhorrence.

The constitutional immobility of adhering to ancient customs is a characteristic of our American farmers, deeply rooted in the prejudices, with which they consider all modern investigations and discoveries; and the most zealous advocates of revolutionizing our agriculture, do not seek to disguise the *Dead Sea* of ignorance, which must be drained from their minds before they can hope to have their work crowned with success. This is difficult to accomplish; yet by gradual extermination of those hurtful notions of "old fogyism," which to a large majority pervade the mind of our farming people, and by enforcing on their consideration some of the principles and results of new discoveries and inventions much may be effected.

Remarks.—We do not suppose that this writer means to ascribe to farmers, generally and indiscriminately, the *immobility, and Dead Sea, and old fogy* terms above. We have been a farmer ourself, and we can see why the farmer can not jump at any change which outside parties, and perhaps interested ones, might propose; but we think we see, and we rejoice in it, a good degree of willingness on the part of farmers, to look at new measures, and to adopt them as soon as the old can safely be given up. There certainly is progress, and there will be greater.—Ed.

TO CORRESPONDENTS.

Ed. Farmer's Magazine:—Will you favor me with some information on the value of oyster-shell lime as a fertilizer, compared with air slacked lime?

We can not speak very confidently on this subject, because the testimony of practical men does not agree. We have often used oyster-shell lime as an ingredient in a compost for potatoes, mentioned otherwhere in this number; and it seemed to us to do well. The whole compost did well beyond a question, but

how much of the good effect was to be ascribed to the lime, is more than we know.

Some farmers, who have tried oyster-shell lime, think well of it; others say it does no good, and that too in circumstances where the difference of opinion can hardly be ascribed to peculiarities of soil. We incline to the conclusion that those who report unfavorably to oyster-shell lime, have not given it a full and fair trial. Lime in any form acts slowly. Conclusions concerning it can not be found as promptly as concerning most fertilizers.

Our own opinion—we do not hold it very obstinately, and our correspondent need not value it at more than he pleases—is, that oyster-shell lime is worth more, ton per ton, than air-slacked lime, more even than the water-slacked (hydrate of lime.)

But when you buy oyster-shell lime, you should know what you get. If two-thirds of it were the ashes and fragments of anthracite coal, it might not be worth much.

We will seek, and if we can find, will communicate more information on this subject ere long.

Growing Wood and Timber.—A correspondent from "down east," inquires incidentally, while writing on another matter: "If the rough lands of New-England will not grow timber and wood more profitably than anything else." Taking him to mean those lands which are too rocky and impracticable to think of plowing, and which will not give good pasturage without, of which there are great extents, we say yes; get them into wood as soon as possible. In twenty years they will produce a good crop of fuel, and in twenty-five they will give chairs, milk pails, churns, hoe handles, clocks, baby jumpers, carriages, mouse traps, and every other useful *contrivance.* With Yankee energy and ingenuity, wood growing and wood working will turn out as good an investment there, as wheat growing and wool growing in more favored regions. The New-England people must cultivate their arable lands better than any other people, because they have less of them, and they will; and yet their rocky hill tops and mountain gorges will afford the basis for as much industry and the means for accumulating as much wealth. Their mountain streams were made to work, and they will work; and timber in all quantities will be wanted. Don't let a year go by till the plantations, on otherwise useless acres, are growing. They will mend your climate a little and your purses a good deal.

The view we have just taken of high culture for the arable lands of New-England and wood growing for the rough lands, is strengthened by the statement of an experienced farmer in the *Massachusetts Ploughman.* He says: "My governing principle is, never to clear or plow land faster or more than I can *manure* and *seed.* I prefer the *growth* of wood, large or small, to *ordinary* tillage."

How with Gardens?—A correspondent, who commends the discrimination of our article in the February number on deep plowing, suggests the foregoing inquiry. The answer is plain. Your garden must have a deep soil. We said with regard to fields that can not be highly manured, and which, nevertheless, you are resolved to cultivate, do not plow as deeply as you would if you had four times as much manure to apply. But if you would have a good garden, and nearly every farmer we have ever seen at home ought to have a better one than he has, you must give it manure, and you must have a deep mellow soil, must underdrain if necessary, and stir the soil to a great depth. Of a quarter of an acre you must make an acre by deepening the soil, else you can not expect to get paid for the extra labor of garden over field culture. The soil should be twenty inches or two feet deep, and all alive with manure. How

often have we seen men picking away on a shallow garden soil, not more than six inches deep, and all below that as hard and cold as the bottom of a gold digging, soil so thin as to be more than saturated after a rain, and then dried to a crisp by a single week's sun. It is folly to expend extra labor on such a soil. Underdrain if need be, cart on clay if it is too sandy, and sand if it is to clayey, and work in the manure till you have a soil deep enough and just right to work easily.

CHARACTER AND FORMATION OF SOILS.

Soils are those portions of the earth's surface which contain a mixture of mineral, animal, and vegetable substances in such proportions as to adapt them to the support of vegetation. We quote from a valuable article in *Morton's Encyclopedia*, "On examining the various soils in this or any other country, they will be found to consist generally,

1. Of larger or smaller stones, sand, or gravel. 2. Of a more friable, lighter mass, crumbling to powder when squeezed between the fingers, and rendering water muddy. 3. Of vegetable and animal remains (organic matter.)

On further examination of the several portions obtained by means of washings, we find,

1. That the sand, gravel, and fragments of stones vary according to the nature of the rocks from which they are derived. Quartz-sand, in one case, will be observed as the predominating constituent; in another, this portion of the soil consists principally of a calcareous sand; and, in a third, a simple inspection will enable us to recognize fragments of granite, feldspar, mica, and other minerals.

2. In the impalpable powder, the chemist will readily distinguish principally fine clay, free silica, free alumina, more or less oxyd of iron, lime, magnesia, potash, soda, traces of oxyd of maganese, and phosphoric, sulphuric, and carbonic acids, with more or less organic matter.

3. The watery solution of the soil, evaporated to dryness, leaves behind an inconsiderable residue, generally colored brown by organic matters which may be driven off by heat. In the combustible or organic portion of this residue, the presence of ammonia, of humic, ulmic, crenic, and apocrenic acids, (substances known under the more familiar name of soluble humus,) and frequently traces of nitric acid, will be readily detected. In the incombustible portion, potash, soda, lime, magnesia, phosphoric, sulphuric, and silicic acid, chlorine, and occasionally oxyd of iron and manganese, are present.

All cultivated soils present a great similarity in composition, all containing the above chemical constituents, and yet, notwithstanding this similarity of composition, we observe a great diversity in their character. This is caused by the different proportions in which the constituents are mixed together, the state of combination in which they occur, and the manner in which the different soils are formed.—*Rur. New-Yorker.*

VARIETIES IN SPECIES.

Dr. Waterbury of this city has recently published in a neat pamphlet the results of his investigations into the origin of varieties in plants and animals. The following are his conclusions, some of which seem to us *practical* and of great value economically.

I. The construction of the different species of animals and plants is such that no one individual can be taken as the type of the race, there being to the original type a margin to allow of variation, and that margin being so wide as to be covered by no one individual form.

II. This variation is produced to meet necessities by the law of development, the exercise of any organ increasing its growth.

III. When the variation occurs it is attended with a change in the chemical composition of the animal or plant, based on a change in the chemical composition of its food.

IV. If the food be defective, or can not be assimilated, the modification does not occur but the animal dies.

V. These changes are always made in a direction to adapt the subject of them more perfectly to such new conditions as require them.

VI. There is a tendency to reproduce these variations in the progeny.

VII. The variations go further as they are reproduced in the race.

VIII. They stop at the line of species, and never pass that line.

IX. While the pressure of circumstances urges them against that line they are permanent.

X. By crossing they may be carried over the line, but the resulting hybrid is unstable, and always returns, after a few generations to one or other of the parent species.

XI. The limits of modification are widest in those species that can assimilate the most various kinds of food.

XII. Perfection of breed is a relative term, implying different organizations for different purposes.

XIII. As fine breeds are introduced into this country more pains must be taken to protect and feed our cattle well and fittingly, or they will "degenerate" to the same stock.

XIV. Fine varieties, when protected, *do* give a greater product from the same amount of food than the coarse.

SOMETHING ABOUT BUTTER-MAKING.

A COMMITTEE of the *Rhode Island Society for the Encouragement of Domestic Industry*, after a series of careful experiments in the making of butter, come to the following conclusions. They say:

From these experiments it is shown that to obtain the best of sweet butter that will keep for a greater length of time than any other without being rancid, we must churn sweet cream—that if the buttermilk is valuable in market, and the butter can be disposed of soon after it is made, there will be the greatest gain by churning the sour milk and cream together—that by scalding the milk and then taking off the cream, the milk is best for market—although the yield of butter is greatest, and the flavor good, it must be put into market direct from the churn and consumed without delay or it becomes rancid and worthless;—that in proportion to the quantity of butter produced from the cream of a given measure of milk, reference being had to the length of time the cream is suffered to remain upon it, will be its liability to become soonest rancid; that the excess of weight as exhibited above is to be attributed in a great measure to the absorption and combination of caseine (curd,) with the oleaginous (oily) portions of the cream;—that the presence of caseine, although it is not objectionable by its imparting any unpleasant flavor while new, renders the butter of less value, as it soon grows rancid; and for the further reason that it is used, necessarily, more profusely than pure butter, which has less curd in it. It has been fully proved that milk contains on an average only one per cent more curd than butter.

In a former communication on the subject of butter making, we disapprove of the practice of adding water to the cream, and of washing the butter, to rid it of its buttermilk. It is in all cases safest not to wash it, even if the water be pure, it will in a measure destroy its fine flagrance and flavor. The use of pure salt can not be too often recommended to those who have dairies in charge. Let the farmers club together, and send to a seaport and get the best of rock salt, sift out the fine, wash and dry the lumps, and have it ground at any gristmill in the neighborhood, as our fathers did before the introduction of the very improved fine Liverpool bag or blown salt.

For the Committee,

STEPHEN SMITH.

THE BEST CROSSES FOR MUTTON.

A FRIEND of ours who has had experience in raising mutton sheep in England, and who is now engaged in that business, called on us the present week and gave us his experience. He had twelve pure China ewes and twenty China bucks, of the broad tail species. The great desideratum in crossing is to aim at size, quality and quantity. The China sheep are very prolific, and good mutton sheep. The Mexican sheep are large size, and by the cross of the China with the Mexican a large and excellent mutton sheep is obtained.

Another fact, too, the prolific nature of the China is retained, as we were shown that by means of the China Bucks to a large flock of the Mexican sheep, an average of twin lambs was the result, and many cases of three and sometimes four.

There is no gain, to cross the China upon the American sheep, but the other cross improves the sheep, both the mutton and the wool.

We desire particularly to state, that from long experience, we learn that the China cross of the Mexican, gives superior *restaurant* mutton, *i. e.*, the kind

that *chops up* well, as young mutton, without forcing — weigh about sixty pounds.

THE BIGGEST BULL THAT "WAS EVER FED WITH HAY."—The show-men who have talked about oxen weighing 4000 pounds each, may as well give up—a larger specimen of the genus *Bos* has been found "down east," than was ever heard of elsewhere. According to the *Maine Farmer*, J. G. Huston, of Damariscotta, has a bull "four years old next May," which weighs 5800 pounds! Whether there is any typographical error in the statement or not, it may as well stand as a check to exaggeration among those who are unwilling to be beaten.—*Boston Cultivator.*

WISE SAYINGS ABOUT FARMING.

MEADOW MUCK.—I speak advisedly in saying the decomposed leaves and other matters washed from the forest and hills, and found in *Meadow Muck*, (and still more if clay be added) when thus applied, *will work wonders!*—*Ploughman.*

ISOLATED MAMMOTH HOGS OR VEGETABLES ought not to be the highest ambition of the farmer's husbandry, but the largest general product, retaining all that may be valuable for the succeeding crop, for men make nothing in spending their strength in single spasmodic efforts, disabling themselves for all the future.—*Ex.*

MR. J. W. PROCTOR, of Danvers, spoke of the cultivation of the Derby farm in Salem. Twenty acres manured with a compost of night soil, barn manure, etc., yield a profit of $200 to the acre, in garden vegetables. People in Salem and Marblehead found sea-weed a valuable auxiliary. Home materials were abundant, and there was no necessity to go away from home for manures. —*N. E. Far.*

THE TURKEY.—This noble American bird has now become common to every civilized country, says the Vermont *Stock Journal*, and the more widely known the more highly is he appreciated. It would be disgraceful to us as American agriculturists and breeders, to suffer this splendid bird to deteriorate.—*Cal. Far.*

PLANTING CHESTNUTS.—The "secret" of success in planting the chestnut consists simply in never allowing the outer shell to become dry. As soon as the well-ripened nuts drop from the tree and are loosened from the bur, pack them *the same hour* in moist sand, peat, or leaf mold, and keep them thus moist (not wet) till planted—which may be late in autumn or the next spring. The chestnut is difficult to transplant, and hence it is better to plant the seed on the spot where the trees are intended to stand. They may be planted like corn in "hills," and all but the thriftiest pulled up afterwards. As they need not be so thick as corn, they might alternate with it, if the ground could be prepared very early, so as to plant both at the right time. Early cultivation, like corn, causes them to grow rapidly; and being in rows, the wagon could pass easily through, in thinning out and drawing off the timber.—*Country Gent.*

THE PLANS THE FARMER INTENDS TO PURSUE during the summer, if not already perfected, should be studied and matured. Each field should be considered, and a determination formed as to its summer management.—*Gran. St. Farmer.*

IF THE FARMER were to devote one hour to the garden before breakfast, much labor could be very pleasantly performed in a very short time, and cost but little.—*Ignotus.*

IT IS A GOOD THING to rear a crop which shall net you $500 or a $1,000 a year; but it is a better thing to rear a crop of ideas which shall net you moral and mental elevation; which shall fit you for the place we all hold, as part and parcel of this great Republican experiment. Live down with all your heart, and all your mind, and all your soul, that old brutal notion that a farmer must needs be uncouth, and unkempt, and unsocial, and ignorant. There may have been an excuse for it in the old days.—*Homestead.*

RICH BARN-YARD or other putrescent manures applied plentifully to the potato crop, is almost certain to bring the rot; and the quality of the potato is not so good, as when grown on a sod without manure.—L. S., *in American Agriculturist.*

SPRING is not far distant, when work comes crowding on, and time is scarce to do it in. Farmers, get your hot-beds

ready; recollect, a good garden is half a farmer's living. Get all your implements ready for work, and in your social visits to your neighbors, learn what he has new in the way of improvement or intentions for the coming year. —*Prairie Far.*

FIELDS OCCUPIED by winter grain, if partially winter-killed, should be harrowed, the bare spots sowed with spring grain or clover, and suitable top-dressings, and then the whole rolled. Any roots disturbed by the harrow will be partially restored by the roller to the soil, and the abrasion will cause such roots to *tiller* (throw out new shoots from the first joint,) and thus give full crops—*Working Farmer.*

Horticultural.

CALENDAR FOR APRIL.

FLOWERS.

As soon as the frost is out of the ground, flower borders should be dug over and the perennial flower roots divided and replanted. In doing this care should be taken to place them so that the taller kinds are in the back ground, and also that they be so arranged as to blend the colors of the flowers well, and also to distribute the sorts that bloom in the latter part of the summer throughout the border in order to keep up a continuous bloom, which when this is attended to in the perennials, at this season, can be readily effected by introducing late sown annuals amongst them.

Amongst the late blooming Perennials of the flower border, the different varieties of *Phlox* and *Chrysanthemum*, are amongst the most desirable.

Flowering Shrubs should be planted also at the spring dressing of the ornamented grounds, such as *Spiræas*, *Philadelphus*, *Snowberries*, *Golden Rose*, *Lilacs*, and numerous others which can be obtained at any nursery.

Roses should be pruned as soon as severe frosts are no longer to be expected, the Hybrid Perpetual Roses, which are the best division of this family for outdoor culture, should be pruned to about one-third of their last growth. But the Cabbage, Moss, and old Garden Roses should be cut back to within two or three inches of the preceding year's wood. The China Roses and Noisettes should not be much cut back but some of the old wood should be taken out altogether, and young wood brought forward in its stead. A good dressing of old stable manure after digging round roses will well repay in the succeeding bloom.

Greenhouse. — Plants coming into bloom must be kept well supplied with water, and water should be thrown on the floor of the house in the afternoon to produce a moist atmosphere at night, as soon as severe frost is not apprehended; this will encourage the growth of the buds. Syringing over head must be discontinued as the buds open.

Any plants that are going out of bloom should be pruned, if they require it, and should then be encouraged to start their young growth before they are subjected to the annual repotting that most Greenhouse plants require. For that purpose they should be placed in a warm part of the house and be syringed daily. As soon as the new growth has started and become from a third of an inch to an inch long they may be repotted. After repotting continue the syringing, and keep the earth in the pot just moist *throughout;* but be careful not to give more water than is necessary for that purpose, until the roots get through the new soil to the sides of the pot, or the plant will be seriously injured.

Give more air as the season advances, to the greenhouse, but avoid admitting cold winds. Air at the roof is the safest and best to induce a strong growth, because it keeps the temperature more uni-

form throughout the house than when the sides only are opened to give air.

KITCHEN GARDEN.

When the weather opens plant from the frames for crops *Cabbages*, *Lettuce* and *Cauliflowers*, and sow more seed of each for successive crops.

Sow all kinds of Vegetable seeds for the principal crops, selecting such sorts as are preferred. Do not sow any broadcast but all in drills in rows, which saves time in tillage afterwards and also yields the finest and largest crops.

Potatoes for main crop may be planted from middle to end of the month.

Peas.—For early crops the *Albert*, *Warwick* and *Charlton* are good sorts. For succession the *Champion*, *Hairy Dwarf*, *Mammoth*, *British Queen* and *Knight's Tall Marrow*, will give a sufficient variety. *Brussells Sprouts* should be sown towards the end of the month, to be treated like Cabbages, and transplanted two feet apart, by three feet in rows, where in the autumn they will yield an excellent crop.

For the American Farmers' Magazine.

CONTRACTION BY FREEZING!!!!

MR. EDITOR:—In the February number of the *Magazine*, in the communication commencing on page 76, *Snow and Vegetable Life*, alluding to "the effect of frost upon the organization of vegetables," the writer says: "This arises chiefly from the contraction of the water or sap whilst freezing in them;" and referring to the snow on the branches of trees, he says, "The white mantle guards the covered limbs from the direct action of the sun's rays." This certainly is very pretty if not poetical, but what are the facts? Simply these: In a large majority of cases no snow lodges on the branches, and when it does, the first passing breeze dislodges every particle of it, and the tree is left as destitute of protection as though such a thing as snow never existed. Speaking of the snow melting on the branches, he says, "Thus they become bathed with water of a temperature *just below* freezing point."

Water *contracting* while *freezing*. Water formed by snow melting in the rays of the sun, of a temperature *below* the freezing point. Such ideas emanating from an obscure individual in some remote corner of this wild prairie country, might have been denominated absurd and ridiculous.

"How many people live? How few amongst them THINK."

Now, *we think* it is because water *expands* while freezing that it bursts whatever vessel it is confined in, whether it be of metal, wood, earth or stone; and from the same cause, namely, its *expansion*, that it ruptures the minute and delicate organization of vegetables. We *think* that only a casual observation will satisfy any person that sudden changes from a warm moist state of the atmosphere to severe cold, (the very time when trees and all other vegetables suffer most from the effects of freezing,) are almost invariably attended with high winds, in which case no snow remains on the trees to be melted by the sun's rays. We also *think* that when water gets to be "of a temperature *just below*" the freezing point, it is rather hard stuff to bathe with—in short that it will no longer be water, but *ice*.

'Tis true, all this may be owing to the obtuseness of our intellect, to the want of a scientific education, or to a kind of old fogyism, as we are a hard working farmer, having had no advantages for an education but such as the common schools of Ohio afforded from twenty-five to thirty-five years ago.

Perchance you may be satisfied by this time (if indeed you entertained a doubt on that point) that not all who take the trouble to *think*, think *correctly*.

Respectfully yours, H.

We do not see that our correspondent in the February number was essentially

incorrect, except in the use of the word "contraction" for expansion; and the error in that was so palpable as to show that, if not a lapsus linguæ, it must have been a lapsus pennæ, and not an error under which the mind of the writer labored. We will say for the friend who wrote the article, that he is not ignorant of the fact that water expands instead of contracting below the freezing point. We can not, however, say that, although he might be called a good penman, he writes sufficiently plain to suit the type-man; and we very much suspect that the blunder was with the compositor, and that the proof-reader overlooked it, although, if fit to be a proof-reader, he must have perceived that the writer was made to speak nonsense instead of sense. But, on the whole, we are inclined to take the blame upon ourselves, for we ought not to have let such a statement go to our readers, whoever else might have been faulty in the case.

Henceforth, let us all remember, that it is the nature of water to contract by the withdrawal of heat, till it comes down to 32° Farenheit, the point of freezing, when it suddenly expands so as sometimes to burst the vessel containing it, to split rocks when confined in pores or crevices, and to injure the delicate organization of plants. Is it not, however, rather a sudden freezing after mild weather, than intense cold that does the mischief? We rather think it is; and we should like an article from some careful observer on this point, showing under what circumstances the cold injures or kills trees, and then again under what circumstances they will endure equally intense or even severer cold, and come out uninjured; and whether sudden thawing after severe cold has anything to do with the mischief. We all know that the manner of thawing—whether it be sudden or gradual—decides mainly the condition of vegetables that have been frozen, as to whether they shall be fit for use or not.—Ed.

CRANBERRY CULTURE.

The kind most known and best a ed to all kinds of soil, is the Bell variety or Egg shaped, and most cultivated in New-England. A round variety raised about Cape Cod is a larger fruit, handsome, and only grows on very wet, marshy land, and not as well adapted to general culture; there are also several other varieties which mature late, larger fruit than the Bell variety, but not as productive. They can be propagated from the seed, or from cuttings or by transplanting. The last method is most frequently adopted. The first crop obtained by planting the seed will be one or two years later than that produced by transplanting. When cultivated, the berries are large and abundant; after being gathered, they turn from light scarlet to deep red, and sometimes almost black. They will keep a very long time if not gathered too early—they should remain on the vines until it is necessary to gather them from the frost—they should be properly dried by spreading them thin for three or four weeks; they can then be packed and sent to any part of the world. If gathered too early, while some of the berries are green, they will not keep.

The soil most suitable for their growth is low, moist meadow land that is not too cold and spongy. In that case, a drain should be cut to let off surplus water, which should always be within twelve inches of the surface, and sand covered over the top three or four inches will be of service, although not indispensable where it is not easily procured. When the ground is uneven, sand can be carted on to level it. They also do well on muck or any poor swampy land, where nothing else will grow; they grow naturally on watery bogs and marshes—on the border of streams and ditches, and by draining wet land and then taking off the top of the ground to remove the wild grass or vegetable matter and carry to the manure heap; then cart on beach or other sand to the depth of two or three inches to level the ground and to prevent grass and weeds from choking the vines, and to keep the ground loose around the plant. They bear abundantly on marshes covered with coarse sand, and entirely destitute of organic matter of any kind, but accessible to moisture—on pure peat covered with sand, and on every variety

of soil, except clay liable to bake or become hard in dry weather, on soil that can be worked with a plow and harrow; it can be prepared as you would do it for planting out garden and other plants; sometimes it can be burnt over so as to get it in a condition to set out the plants. They can also be raised on moist loam where corn and potatoes will grow, but not so abundantly on dry or sandy soil unless covered two or three inches with muck or spent tan. No animal or vegetable manure should be used, as the fruit draws most of its moisture from the atmosphere. The poorer the soil, the less cultivation is needed.

If you have a peat swamp and design converting it into a cranberry yard, your first step to be taken is to find a level that is not too wet, and then clear off the turf or grass sods, and bring the rest of the swamp to the same height. When it is thus cleared and levelled off, it is not then ready for the reception of the vine. Should the vine be planted, it will do well through the winter and spring, but in the hottest weather the peat will bake and become hard; it will therefore be impossible to take in the moisture of the atmosphere, which is absolutely required by the vine. The absence of this moisture will cause the plant to die, and thus both labor and money are lost. This will be prevented by leaving the prepared swamp exposed to the action of the frost for one winter, when it will, after it is thawed, crumble and present a light gravelly appearance, the largest lump of which will not exceed an ordinary pebble. When the swamp has thus been treated, it will not afterwards bake and become hard; its surface will be light and porous.

When vines are planted, it is often the case that in the summer following they will appear as though they were dead; and the cultivator, having this impression on his mind, will take them up, believing that it is impracticable on his soil to raise any fruit.

The plant is very tenacious of life, and if there is but half a chance it will take hold and live, though it may not yield much fruit. These vines should not have been taken up, for it is evident that their natural stunted appearance was mistaken for death. They ought to have remained in the soil at least another year, when it could have been fully determined whether they were living or dead.

The Bell Cranberry is that which is mostly desired by cultivators, but even experienced men are often at a loss to distinguish the vine on which it grows from the Bungle or the Cherry. If found in the middle of a swamp in its wild state it will invariably throw off the runner towards the driest part of the bog. Hence it is found on the edges most frequently. When it is transplanted and brought under cultivation, it is true to the same law, and will send its suckers up the banks of the yard, and these will yield well. The inference drawn from this is, that it can be cultivated on upland soils adapted to its wants, even should it not be overflowed, and is therefore best adapted for general cultivation. Lay out the grounds as you would for setting out cabbage, strawberry or other plants—have a pointed stick or dibble, and make a hole for the plant—have the plants immersed in muddy water so thick as to adhere to the root—place it in the hole from three to four inches under ground, and press the dirt very closely around it. To have the rows uniform, draw a line and put the plants, 18 by 20 inches, in rows—where small patches are desired which can be kept clean with a hoe; the nearer they are together, the quicker they cover the ground—but where acres are planted it will save much labor by putting them 2 to 2 1-2 feet apart, then a plow or harrow can be used to keep out the grass and weeds.

After one or two years' cultivation to keep out the grass, they will take care of themselves. At 18 inches apart, it will take 19,000 plants; 2 feet 10,000; 2 1-2 feet, 7,000 plants to the acre. They can be planted out in the fall at the North from September until the ground freezes, or in the spring until the middle or last of May. At the South and West, if possible, they should be planted out in autumn and December; if received too late for planting out, the roots can be covered with dirt in a box or in a cellar (but not in the ground out of door) until early in spring. As it is often late before we can start the plants, and the great press of freight often delays them beyond a desirable time, if not ordered in the fall, they will always be forwarded as early as possible in the spring. The transportation of 10,000 plants to Chicago, Cincinnati or Harrisburg will be about $2—1,000 to 5,000 plants, from $1 to $1.50. Where

land for Cranberry culture can be overflowed (which is by no means necessary), fall is the best time to plant them out, but where there is no overflow, I am satisfied that they can be planted out in early spring as well as fall. Every family can have their garden patch in that case, and in dryish soil, grass, meadow muck or tan around the plant will be beneficial to retain the moisture. They are highly ornamental in pots—the fruit hanging on the plants until the blossom appears for the next crop. The first year they often bear fifty bushels to the acre, and increase every year, until sometimes they bear from 200 to 300 bushels per acre, perhaps the net average is from 100 to 150 bushels per acre. They usually bring from $2 to $4 per bushel—never less than $2—this year they are worth from $4 to $6 per bushel. Cultivated fruit is less likely to be affected with drought than wild fruit. One man with a rake made for the purpose will gather from thirty to forty bushels a day, with a boy to pick up the scattering ones.—*Horticulturist.*

A GARDEN ON A STIFF CLAY SOIL.

LESSON FROM EXPERIENCE.

THE *Ohio Cultivator* describes the manner in which a gardener near Columbus, known as "Old Joe," made a good garden on a most forbidding soil.

"Joe's garden was originally a compact clay soil, such as predominates throughout a large portion of Ohio, and is the greatest obstacle to successful gardening, especially among farmers and those who can not afford to do things thoroughly. But not so with our friend Joe. His first effort, after erecting a shelter for himself and his flowers, was to trench a portion of his ground two feet in depth, mixing with it coarse manure and other materials to enrich it, and especially to *admit air into it.* This was a slow and laborious operation, but it was the only true way; and by doing a little at a time, the whole was accomplished without much expense, and the result has been such a healthy growth of his plants and shrubs, and such power to withstand drought, as to compensate tenfold for the labor.

"Since this first operation on his land, Joe's favorite application has been *sawdust*, half rotted, if to be found, and in its absence, mold of rotted logs from the woods. A good dressing of these materials is spaded into the ground as often as once in ten years, at a cost fully double the expense of ordinary manuring.

"On my expostulating with Joe one day, about his free use of sawdust, and asking for his theory about its effects, he told me it was '*to give the roots a chance to breathe.*' This explanation was so sensible as well as philosophically correct, that I wish it could be indelibly impressed on the minds of all owners of clay grounds, whether fields or gardens.

"The great want of our strong clay lands, is not so much the materials for enriching, but to *admit the air into them*, or as Joe says, 'to give the roots a chance to breathe.' Let this be done, in connection with draining where too wet, and deep plowing or trenching, and the average products of our gardens and fields would be more than doubled, and the effects of our hot summers and severe droughts would hardly be noticed."

We have copied the above from the *Homestead*, but not wholly to approve. If Joe's trenching was done with the spade, as we suppose, what is the meaning of saying that it did not cost much? To trench such land two feet deep costs an amount of human strength, which ought to be worth a good deal, and would be if wisely exerted. It would be much better to plow one foot deep and subsoil another foot; and we believe his fertilizers could as well be plowed in as dug in. If he had plowed a furrow one foot deep, then run the subsoil plow another foot, and then filled the furrow with his coarse manure, and turned the next furrow upon it, would it not have been about as good an operation, at a much less expense?

We should have no objection to the use of "sawdust, half-rotted," in such a case, but we think the "half rotted" is the best part of the story; and as for working in rotten wood, the same principle would hold. If reduced to a fine mold and mixed with a rich top soil, on which leaves had decayed for long years,

it would be a good dressing for that or any other soil.

Where a tenacious clay is to be amended into a feasible garden soil, if there is a sandy field near, the best way is to amend both at once by carting back and forth, clay to the sandy soil, and sand to the clayey. If Joe's garden was but a patch, too small for a strong team to turn round upon, the trenching was well enough. If it was of considerable size, he could have found a better way.

The time has not yet come, may it never come, in this country, when human muscles are the cheapest power that can be employed.

The weight of such a soil, two feet deep, is not less than 4000 tons to the acre.

STRAWBERRY PLANTING.

The present is a good time to plant Strawberry vines, and if now planted correctly upon good soil they will produce a liberal crop the present year.

Remember to select a good substantial loam; to plow deep and work the soil well, applying no manure that contains grass or weed seeds. Leaf mold is good. Swamp muck, if long up and well cured, may be used to advantage. Twenty inches for the rows, and ten inches for the hills are good distances. Set none but the best varieties, and let about every eighth row be staminates. By early setting and careful cultivation, you may have a small crop the first year, and a very large one the second year.—Ed.

DON'T BE GULLED.

Farmers, amateur gardeners, &c., should be careful in future not to be gulled by the wonderful stories of correspondents in the agricultural and newspaper press, respecting new corn, potatoes, pears, raspberries, grapes, currants, and other grains, vegetables and fruits; as in nine cases out of ten these elaborate correspondents adopt this trick to puff their own bantlings into notice, in this most desirable way, free of cost to themselves, and most likely to find favor in the eyes of those they are intended to deceive. Now, the common caution should be observed by those we address not to be led by the bombast of the tribe into buying these expensive articles until their value is established by reliable practical experimenters. It is much better to wait one or two years, when the article, if proved to be as represented, can be obtained at one-half or one-fourth the price originally demanded, than at once to rush into a purchase and get bit. —*Germantown Telegraph.*

We shall, for our part, take all care that the readers of the *Farmer's Magazine* shall be kept duly posted up in matters of this kind; and then if they choose to become a prey to these vampires, they will do so with their eyes open.—Ed.

IMPORTANCE OF UNDERDRAINING.

To the perfect completion of a good fruit garden, it must be thoroughly underdrained. If possible, let it be done before setting out the trees, though it could be done at some future day with some slight root pruning, which might not prove injurious if carefully managed, only let it be remembered that *it must be done.—Mass. Hort. Society.*

POISONED HAY.

A farmer in Ashtabula, Ohio, complains that he has lost seven head of cattle by their eating poisoned hay. It appears that the poison is in the form of ergot, a smutty excrescence which grows on the June grass. It grows as it does on rye, in the shape of a diseased and enlarged seed, of dark color, varying from the size of a wheat grain to three-fourths of an inch long.

A Frog in Ice.—We were shown lately, by a Savannah gentleman, a lump of Norwegian ice, in which a medium sized frog was comfortably and coolly ensconsed. His frogship showed symptoms of life after his cool incrustation had dissolved, and having been placed in water was thawed into life and activity. It certainly was a curiosity to see a live frog thus done in ice; but whether last winter it contemplated a tour to Southern latitudes and considering the above was the coolest mode of traveling, we leave a question of debate with ichthyologists, *et ia genus omne.—Savannah Georgian.*

Scientific.

CHEMICAL.

AMMONIA.

What is this substance that all the world is talking about, that we are bringing from the Chincha Islands, at a cost of at least 17 cts. a pound, and at the same time are wasting it at home?

It was first prepared for ladies smelling bottles and other fancy purposes, from camel's dung, in a region of Africa called Ammonia. Hence its name. But what is it? What are its constituents? In what proportions, and under what circumstances do they combine to form this much talked of substance?

Ammonia is composed of one atom of nitrogen to three atoms of hydrogen. The atom in weight, of the former, is fourteen times that of the latter. Therefore, of 17 lbs. of ammonia 14 lbs. are nitrogen, and 3 lbs. hydrogen. These constituents are very abundant in nature.

Nitrogen constitutes 79 hundredths of all the air, and hydrogen 1 ninth of all the water on the globe. The ammonia making materials are therefore so abundant that one might suppose that this compound might be very plenty and cheap. But the nitrogen and hydrogen so abundant in nature, do not combine to form ammonia, except under peculiar circumstances. To a limited extent the process of its formation is always going on, and the atmosphere is always kept supplied with a small per cent of ammonia. Those who have made the most careful investigations estimate it at about one part in 10,000. So much nature supplies, and is always throwing into the air that great reservoir of plant-food. Science has yet discovered no way in which ammonia can be artificially prepared in such quantities as to render it plenty and cheap, notwithstanding that the ingredients are as plenty and as cheap as chips in the farmer's wood-yard in April.

Nitrogen and hydrogen, in their ordinary state, have no affinity for each other. You may put 14 parts by weight of nitrogen and 3 of hydrogen, into a jar, but if you keep them there ever so long they will not unite and form ammonia. It is only in their *nascent* state that they will combine. The young reader, if no others, will need to be informed what their nascent state is. We will explain, for we are not writing for old chemists, but for persons who are convinced, as all ought to be, of the immense benefit to be derived by practical farmers from even a little knowledge of this great and all pervading science—a science that has to do with every body's business, and especially with the farmer's.

Well then, *nascent* means *being born*. That is the Latin meaning of it. By way of accommodation chemists have used it to mean *newly formed*. The forming of compounds from simples, and the separation of simples from their compounds, is always going on in nature. Now although nitrogen and hydrogen in their ordinary state, will not unite, yet if they come together in their nascent state, that is, when first separated from other compounds, they will, at that instant, though not one moment afterwards, combine and form ammonia.

We wish here to give some practical illustrations of the formation of ammonia, reserving its uses in agriculture, the best modes of preventing its waste, and its importance to the farmer, for future numbers. Let the reader understand that the ammonia so universally talked about is not the pure ammonia (ammoniacal gas) described above as formed from nitrogen and hydrogen. It is this combined with some acid, as carbonic or sulphuric, forming a carbonate or sulphate of ammonia.

Thus, in the good old times, when cosmetics and perfumes were not as essential to beauty as now, a lady would buy

an ounce of carbonate of ammonia at the shops, and put it with as much quicklime into a phial and cork it up. On removing the cork and applying to the nose, a tingling sensation would be felt, supposed to prevent fainting at church, and in other assemblies. We should think it would cause rather than prevent fainting, and what is more, we know it would.

The explanation is this;—the lime had a strong affinity for the carbonic acid in the carbonate of ammonia. The carbonic acid left the ammonia and joined itself to the lime, forming a carbonate of lime; this left the ammonia to pass off as pure ammoniacal gas, transparent, invisible, colorless. In passing from the mouth of the phial it mixed with the air, and so did not injure the person snuffing it as badly as it otherwise would.

Now let us go from the old-fashioned smelling bottle, which, like many other things, had for a long time a better reputation than it deserved, to the compost heap. What takes place here? There is no ammonia in unfermented manure, but there are the materials to make it of. There is nitrogen, and there is water, and there are substances to be oxydized. As fermentation commences, the oxygen of the water combines with various substances — oxydizes them. This leaves the hydrogen of the water alone. At this instant, being just separated from its oxygen, that is, in its *nascent* state, it will combine with nitrogen, if it can find any that is also in the same nascent state. This it can find, because there is nitrogen in the manure, and it is being separated from its various compounds by the fermentation. Both the hydrogen and the nitrogen being in the nascent state, unite and form ammoniacal gas. But as we showed in our February number, carbonic acid gas is being formed in the compost at the same time. This combines with the ammonia, and forms carbonate of ammonia, which passes off in the form of an invisible but pungent gas, and being very light rises and rapidly diffuses itself far and wide, to be sooner or later absorbed by atmospheric moisture and brought down in rain, ten miles, or a hundred, or it may be a thousand, from where it ascended.

When a compost is thus wasting its ammonia, you can not see it escape. It is invisible. By holding over the heap a feather wet with strong vinegar, or better, with muriatic acid, you will see a white cloud formed around the feather. The muriatic acid expels the carbonic acid, and with the ammonia forms muriate of ammonia, which immediately becomes visible to the eye, and falls as a mist or fog. This is a good test by which to judge whether manure is losing its ammonia. The sense of smell is a more practical test. Set it down, that *no spot on the farmer's premises should have the least tinge of the odor of the old smelling bottle.* If the air in the stalls have the least of that pungent odor, you may know that something is wrong. If, on the other hand, none of this odor is perceptible, all may not be right, for it is no uncommon thing for so many foul gases to be generated at the same time, that the peculiar odor of the ammonia is disguised and becomes imperceptible to the olfactory nerves.

Clay and peat have a strong attraction for ammonia. Hence if peat, or loam, which contains clay, or coal dust, or any carbonaceous matter, as leaf mold, headland scrapings, or the scrapings from the chip-yard, be composted with manure and the mass be kept in a moist condition, there is little probability of the escape of ammonia, for these seize upon it, become enriched by it and hold it till put into the soil and required by plants. Even water is a pretty good retainer of ammonia. So long as its surface is kept moist, little ammonia will escape. But the tendency of fermentation is to expel the moisture, and therefore if manure is to be fermented in the open air, some of

the other substances named above should be mixed with it to operate as a retainer.

Plaster has a good effect, so long as the manure is moist; and some effect, we have no doubt, when dry; and we think, therefore, that it is well to sprinkle a little plaster about the stall, the manure heaps, and the yard. But the farmer's surest resource is, in such substances as we have mentioned above, something that his own farm affords. There is scarcely a farm that does not afford just what will come in play for composting and preserving the manures. In the main, each farm must enrich itself.

From what we have said, it will be seen that there is no danger of the loss of ammonia after manure is put into the ground if the soil be a good one. A clay soil, or a peat soil, or a loam, any soil that does not consist almost entirely of loose sand, has in it enough to hold the manure till the crops take it. A very sandy soil has not, and therefore we would recommend that on such a soil, any manure that is capable of fermentation should be composted largely with some substance adapted to hold the ammonia. For a similar reason we believe that when top-dressing is practised, the manure should be composted largely with some substance of a nature to hold the ammonia, and then worked down into contact with the soil, or as nearly as may be.

More of ammonia in our next. The subject, we know, is not easy to comprehend; but it is very important to agriculture, and we will try to make it available to our readers, by dint of perseverance, and by such practical illustrations as can be spread on the printed page.

ON THE INFLUENCE OF CLIMATE UPON VEGETATION.

BY A FRIEND.

In some remarks made in the March number of the *Farmers' Magazine* upon the introduction of new agricultural crops, we adverted to the importance of the study of the influence of climate.

We recur to this subject again, more particularly for the purpose of introducing to our readers a very interesting and instructive extract from the Himalayan Journal of Dr. Joseph D. Hooker, one of the most talented and diligent naturalists of the day.

From the perusal of the following extracts from the first volume of his work, it will be seen that in the Sikkim region of the Himalaya mountains, at an elevation of several thousand feet the temperature, if judged of *alone* as indicative of the influence of the climate there upon vegetation, would lead to wholly erroneous conclusions. And the Doctor has pointed out very lucidly the causes which operate to effect the difference.

The Sikkim region is that in which he discovered the extraordinary new species of Rhododendron, (to which in a future article we may particularly refer;) and it is during certain parts of the year enveloped by a dense, moist atmosphere that is very favorable to the development of vegetation in certain stages of its annual growth, (namely, whilst it is forming new shoots in their earliest state,) but which is unfavorable to the process by which the young wood is hardened and assumes the ligneous texture. And the reason of this latter fact is, that the aqueous vapors held in suspension in the atmosphere prevent, in great measure, the direct rays of the sun from generating the amount of heat necessary for the maturing or ripening process. But this does not apply equally to all families of plants. From their difference of internal organization, and from their variation in the length of their growing seasons, the amount of heat and of light required by different plants varies greatly. Hence the circumstances of the variations that Dr. Hooker points out between the effects of a climate, although temperate, upon vegetation exotic, as compared with that which is indigenous to it.

In all the more perfect forms of vegetable life, whether of an oak tree or of a cornstalk, there are similar processes to be gone through. First, the enlargement of the frame, then the solidifying or hardening process, (to a greater or less extent,) then the fruit-bearing process, in which, be it observed, the same processes are again repeated. In the corn, the whole takes place in a year, in the oak the same system is repeated year after year by the same plant. But it *is* repetition, and the *modus operandi* is analogous the one to the other,

This should be borne in mind in all our agricultural and horticultural operations; in the prosecution of which we should always in our tillage reflect upon *which part* of the annual process our labor, for the time being, is intended to urge forward or to assist. By so doing we shall find that the question of *climate* (not temperature alone, but *that* combined with other meteorological facts connected with the locality in which we work) becomes of primary importance to success.

We have heard the remark made, that for *practical* purposes, in agriculture the study of climate matters little, since we can not alter that to suit our convenience. This is a very thoughtless conclusion. True it is, we can not alter the climate; but if we know *what effect* a given climate has upon a particular crop, we can oftentimes modify our system of farming so as to adapt it to the climate, and thereby render the climate conducive to, instead of adverse to, our wants. And when we can not do that, we at least can save ourselves an outlay of time, money and labor in the attempt to grow a crop, that without the knowledge of the effects of climate, we might year after year vainly plant.

With these observations we strongly commend the study of climatology to our readers, for it is that which promises more reward than many others to which agriculturists seem inclined to devote their leisure hours. And we think that the following remarks from Dr. Hooker's interesting publication will, when well weighed, justify to our readers the value which we attach to the subject that they so efficiently illustrate:

"The potato thrives extremely well "as a summer crop at 7000 feet in Sik- "kim, though I think the root (from the "Dorjiling stock) cultivated as a winter "crop in the plains is superior both in "size and flavor. Peaches never ripen in "this part of Sikkim, apparently from "the want of sun; the tree grows well "at from 3000 to 7000 feet elevation, "and flowers abundantly, the fruit mak- "ing the nearest approach to maturity "(according to the elevation) from July "to October. At Dorjiling it follows the "English seasons, flowering in March "and fruiting in September, when the "scarce reddened and still hard fruit "falls from the tree. In the plains of "India, both this and the plum ripen in "May, but the fruits are very acid.

"It is curious that throughout this "temperate region there is hardly an "eatable fruit except the native walnut "and some brambles, of which the 'yel- "low' and 'ground raspberry' are the "best, some insipid figs, and a very aus- "tere crab-apple. The European apple "will scarcely ripen, (this fruit and sev- "eral others ripen at Katmandoo, in Ne- "pal, (altitude 4000 feet) which place "enjoys more sunshine than Sikkim. I "have, however, received very different "accounts of the produce, which, on the "whole, appears to be inferior,) and the "pear not at all. Currants and goose- "berries show no disposition to thrive, "and strawberries are the only fruits "that ripen at all, which they do in the "greatest abundance.

"Vines, figs, pomegranates, plums, "apricots, &c., will not succeed even as "trees. European vegetables again "grow, and thrive remarkably well "throughout the summer of Dorjiling, "and the produce is very fair, sweet and

"good, but inferior in flavor to the Eng-
"lish.

"Of tropical fruits cultivated below
"4000 feet, oranges and indifferent ba-
"nanas alone are frequent, with lemons
"of various kinds. The season for
"these is, however, very short, though
"that of the plantain might with care
"be prolonged. Oranges abound in
"winter, and are excellent, but neither
"so large nor free of white pulp as those
"of the Kasia hills, the West Indias, or
"the west coast of Africa. Mangos are
"brought from the plains, for though
"wild in Sikkim the cultivated kinds do
"not thrive. I have seen the pine-apple
"plant, but I never met with good fruit
"on it.

"A singular and almost total *absence*
"*of the light and of the direct rays of*
"*the sun in the ripening season, is the*
"*cause* of the dearth of fruit. Both the
"farmer and orchard gardener in Eng-
"land know full well the value of a
"bright sky, as well as of a warm au-
"tumnal atmosphere. Without this
"corn does not ripen, and fruit-trees are
"blighted. The winter of the plains of
"India being more analogous in its dis-
"tribution of moisture and heat to a Eu-
"ropean summer, such fruits as the
"peach, vine, and even plum, fig, and
"strawberry, &c., may be brought to
"bear well in March, April, and May, if
"they are only carefully tended through
"the previous hot and damp season,
"which is, in respect to the functions of
"flowering and fruiting, their winter.

"Hence it appears, though some Eng-
"lish fruits will turn the winter solstice
"of Bengal (November to May) into
"summer, and then flower and fruit,
"neither these nor others will thrive in
"the summer of 7000 feet on the Sikkim
"Himalaya (though its temperature so
"nearly approaches that of England) on
"account of its rains and fogs. Further
"they are often exposed to a winter's
"cold equal to the average of that of
"London, the snow lying for a week on
"the ground, and the thermometer de-
"scending to 25°. It is true that in no
"case is the extreme of cold so great
"here as in England, but it is sufficient
"to check vegetation and to prevent
"fruit-trees from flowering till they are
"fruiting in the plains. There is in this
"respect a great difference between the
"climate of the central and eastern and
"western Himalaya, at equal elevations.
"In the western (Kumaon, &c.) the win-
"ters are colder than in Sikkim; the
"summers warmer and less humid. The
"rainy season is shorter, and the sun
"shines so much more frequently be-
"tween the heavy showers, that the ap-
"ples and other fruits are brought to a
"much better state. It is true that the
"rain-gauge may show as great a fall
"there, but this is no measure of the
"humidity of the atmosphere, and still
"less so of the amount of the sun's di-
"rect light and heat intercepted by aque-
"ous vapor, for it takes no account of
"the quantity of *moisture suspended in*
"*the air*, nor of the depositions from
"fogs, which are far more fatal to the
"perfecting of fruits than the heaviest
"brief showers. The Indian climate,
"which is marked by one season of ex-
"cessive humidity and the other of ex-
"cessive drought, can never be favora-
"ble to the production either of good
"European or tropical fruits. Hence
"there is not one of the latter peculiar
"to the country, and perhaps but one
"which arrives at full perfection—name-
"ly, the mango. The plantains, oranges,
"and pine-apples are less abundant, of
"inferior kinds, and remain a shorter
"season in perfection than they do in
"South America, the West Indies, or
"Western Africa."

CAPACITY OF MATTER.

THERE is undoubtedly much loss sustained through the want of a more exact and practical knowledge of the full powers and capacities of matter. Next to the want of a natural tact or aptitude

in a craftsman for his craft, is that of knowing how to bring out and appropriate every element, however concealed in the material which he manipulates. The two, however, usually go hand in hand, and constitute the celebrity and success of every operator. Of the same quality of flour one baker so kneads and tempers his dough, that the praise of his bread is in every mouth, while another makes of it such stuff as were "Jeremiah's figs—too bad to give the pigs." So the same quality of steel may be manufactured into Damascus blades or Rogers' cutlery by one smith, and into "Peter Pindar Razors" by another. An honest old farmer friend of my early days was never known to swear a syllable, except, "By the powers of mud!" and this was on his tongue's end about as often as his plow hit a stump, or stone, or any other especially exciting incident crossed his path. The superabundant ingathering from his wheat, corn, and potato fields, orchards, and gardens, however, fully proved that no man better than he understood the powers of mud, or could better compost and coin tons and tons of it every year into golden treasures. If the well authenticated reports of "the lost arts" are true, there are many long-concealed powers of matter yet to be ferretted out and brought into the light and service of the world. They may be discovered by chance as the scavenger sometimes sweeps up a lost diamond, or by men who are willing to look for them as the boy was told to hunt for the lost wedge, when he said he *had* looked everywhere that it could be. "Well then," said his father, "look everywhere that it can not be and you will find it." Infinitely more important discoveries are or may be made by laboring men pursuing their daily avocations than by men of mere empty scientific pretensions, if they could only turn them to good account. What unlimited advantages every farmer has for increasing the desired knowledge of insects for instance, as well as mechanics and manufacturers for unfolding the capabilities of the material in which they operate. Every one should find means of making public whatever may tend to public good. If I may be permitted to illustrate by example, I will do so by saying a few words about properties which I have discovered in two simple articles, namely, calcined plaster and lead, which I think are not very generally understood or appreciated. And if my remarks favor one profession more than another, it shall be a profession not of trifling importance to the present tooth-afflicted generation, nor one slow to appreciate and exert its best faculties to allay the fearfully prevailing dental defection. In taking a cast of the gum for fitting suction plate for teeth, if plaster is mixed very thin, say two spoonfuls to two of water, more or less as the case requires, and beaten up like eggs, it at length assumes a new aspect of cohesiveness and plasticity, and will spread like well tempered butter till on the very verge of "setting." Let it now be quickly transferred to the mouth-cup, and pressed to its desired depth on the gum, it conforms instantly to every peculiarity of shape and contour, hardening so quick that it may in less than one minute be taken from the mouth a perfect smooth impression, while if it had been merely mixed as usual it would have required three or four times as long to harden, annoyed if not sickened the patient, and come out less perfect in every respect. How this matrix is to be immediately oiled and filled for a male, or counter cast, say two inches high with similarly prepared plaster paste kept in place by a paper wall around it, is well known to practical dentists, for whose *sole* benefit I am not, by the by, just now writing. My next subject is *lead*, so much more celebrated for its *cold*ness and gravity than for any lively or accommodating properties. But let us see;—when the plaster model of the jaw or die, No. 2, is perfected with its provi-

sions for air-chamber and all, take a sheet-iron pan five inches square and one and a half deep, containing about eight pounds of lead. Heat it considerably above the melting point and set it where it will cool, not too rapidly. Stir in the lead from the corners and outer edges towards the center and up from the bottom, carefully moving every granulating particle into the middle of the pan. Very soon the whole mass appears so equally and harmoniously tempered that you may pile it up like hasty pudding, and still see uncooled liquid lead flowing around its base. It is in this condition that I claim for it powers and properties not, I believe, very generally known. Almost every particle is mutually ready with every other particle, on the application of a very little chill to "*presto, change*" from an almost semi-fluid, soft and impressible state, to one of unyielding hardness, and still seemingly willing to linger a moment longer to take to itself any impression by which the true artist may be facilitated in his labors. This, however, is a critical period of not more probably than fifteen seconds' duration, and allows of but little delay. Smooth now the molten mass to a level in the pan, and while the quicksilvery glow yet remains on its surface, press steadily down with a firm hand the faultless plaster model to its desirable depth. Every particle of yet *flowing* metal hardens as it receives the impression of the descending form, and is almost instantly, in concert with the rest, in a solid state. The model, if rightly shaped, may now be lifted uninjured from the lead before cooling binds it in. This second or leaden matrix when cool may be painted with a thin solution of whiting and water, and surrounded by a strip of sheet lead two inches high, and filled with tin or type-metal, melted and tempered like the lead so that it will just flow into the matrix and cool instantly on receiving its form. It is advisable before marring the matrix by striking up the plate to take duplicate dies, say one of tin and one of type-metal, which is much the harder of the two. It can but be obvious to every philosophical and practical dentist, that by having the plaster elaborated to the point of "setting" in both cases, taking the gum impression and its model, there must be the least possible amount of contraction. This is, if possible, still more obvious of the low temperature to which the metals are reduced before being used. Experience alone, however, can make any method pleasant and profitable. I will only add, in conclusion, that the whole operation of taking the four dies, namely, the female and male plaster dies, and the corresponding metallic ones, capable of striking up a plate of the most perfect adhesive powers, seldom takes me more than one hour. I cool the lead in water, if in haste, as soon as the matrix is formed, and so the tin and type-metal as soon as poured in and hardened. And better than all, never since adopting this process have I had a patient return with the doleful story of having been shocked and horrified by their teeth dropping out, and "right before the minister."

As my subject, Messrs. Editors, seems to contemplate the gathering up of the fragments that nothing be lost, will you allow me to add a word or two from personal experience in relation to the value of *natural* teeth and *unbroken* nerves to those who are "*talking seriously*" of having their mouths cleared of native occupants, to be filled with the gold and porcelain of the artist. Four years ago I had thirteen teeth extracted at one sitting of five minutes, and without anæsthetic agency. It was done most kindly and skilfully, but was still a most cruel outrage on the "harp of so many strings." It stands not to reason that such a simultaneous crash and disrupture of nerves extending to every possible part of the system can be otherwise than disastrous. Sickness, death, and what is worse, the

loss of reason have occurred from such operations, especially in the hands of unscrupulous, heartless empirics. Not a little suffering in this way is silently endured and concealed through fear of railery. If natural teeth must be sacrificed, three, four, or five, according to the constitution of the patient, are as many as should be removed at once, and that only at intervals of several weeks. But where even three or four sound masticating teeth remain in each jaw, their removal is sacrilege. The most perfect artificial teeth ever made can not atone for their loss. I wear as good and useful ones as can be procured, but I know of a certainty that, however well they please the eye, they do not admit of the delicacy and completeness of mastication, the free and nutritious flow and mingling of saliva, and the refined taste, relish, and appreciation of food which every function of the system hankers after and pleads for as indispensable to their healthy action. I have not, however, the least cause or disposition to speak disparagingly of well-made and skilfully adjusted plate-teeth in a mouth which has not sacrificed too much natural advantage for their attainment. They are capable of proving an inestimable blessing to the otherwise toothless, whose knife and fork, by the by, should work well for their benefit, that is, should be of a decidedly "*mincing*" propensity, as food can hardly be made too fine or swallowed too moderately for the good of the wearer. Keep them in water during the night, with a good brushing as they are replaced in the morning.

Yours truly, EASTMAN SANBORN.

ANDOVER, Mass., Feb., 1858.

For the American Farmer's Magazine.

ON THE DURABILITY OF WOOD.

MR. EDITOR:—In the number of your journal for December last, under the head of INTERROGATORIES, your correspondent J. R. B., proposed several "questions, which he desired to have answered satisfactorily, either by yourself, or by some of your scientific correspondents." The most of them were ably, and no doubt, satisfactorily answered, at the time, by yourself. I have been waiting ever since, hoping that some of your many correspondents would reply; but as none of them has done so, I send you the following answer to the other, and only remaining question, to wit, "*On what principle depends the durability of wood.*"

There are several circumstances and conditions upon which the durability of wood may depend, namely, whether it be subjected only to the influence of dry air, or entirely excluded from the atmosphere by being kept under water; or whether it be exposed to both elements, or in any way, so as to absorb oxygen, whereby slow combustion or oxidation would take place, or some other chemical transformation. Its durability materially depends also, upon the nature and properties of the constituents of the juices in the wood. It is to this last, that the most particular attention will be herein given.

Woody fibre or lignin which constitutes the organic structure and tissues of wood, is the same in all kinds of it, and when pure, is very durable. But, wood, in its ordinary and natural state, is prone to rot and decay, whenever its vital action ceases. This is in consequence of its containing in its juices, certain nitrogenized albumenous substances which run spontaneonsly into fermentation, putrefaction and decay, when exposed to moisture and an elevated temperature of the atmospheric air. To render wood durable, therefore, it is requisite either to neutralize and destroy the septic properties of those substances by artificial means, or to remove them, and thereby counteract or prevent their contaminating and destructive effects.

In order, therefore, to understand the nature of those substances more clearly,

and the reason why some kinds of wood in the natural state are more lasting than others, and how to retard or prevent their spontaneous decomposition and decay, it is important and necessary to know also what are the component elements of the juices of each kind, and their chemical characteristics and properties.

It is a well ascertained fact, that the sap and cambium which constitute the juices in a tree, are compound substances, composed of many different proximate principles, varying in number, quantity and proportions in each kind of wood, to wit, resin, oil, gum, sugar, starch, &c., none of which contains nitrogen. These are called *non-azotised*, or *non-nitrogenized* substances. Accordingly, they are not of themselves, capable of running spontaneously into the *putrefactive* fermentation, nor of injuring the wood by any of the chemical transformations which they are susceptible of undergoing. But, the sap and cambium contain also three other proximate principles, namely, albumen, gluten or vegetable fibrine, and casein, all of which contain nitrogen as one of their ultimate elements, and consequently, they are the only causes of the spontaneous *putrefactive* fermentation, and ultimately of the decay thereby, of all kinds of wood, as well as of all kinds of animal matter.

These three substances are known by various names, namely, *nitrogenized* substances, *azotised* substances, *albumenous* compounds, and also, by the more comprehensive term *protein*. They are all three identical in properties and composition, whether they belong to the vegetable or animal kingdom, differing only in their external character, as the vegetable albumen in nuts, almonds, and the sap of trees, the gluten or vegetable fibrine in wheat flour, and the vegetable casein in peas and beans, are the same as the white of eggs, the fibrine of blood, and the curd of milk. They contain also, the same organic elements, in exactly the same proportions, and are the basis of all the vegetable and animal tissues. They are also alike susceptible of running spontaneously into the *putrefactive* fermentation, when exposed to the conditions necessary for affecting chemical transformations.

These three protein substances possess certain other characteristic properties that distinguish them from resin, sugar, starch, and all the other non-nitrogenized constituents of the juices of the wood, prominent among which, is that of their being susceptible of coagulation by various chemical agents, which produce antiseptic and preservative effects, by converting them into an insoluble and inert coagulum, incapable of fermentation, putrefaction and decay.

Some one or more of these protein substances are contained in greater or less proportions in all kinds of wood, and when it has lost its vitality, and consequently its power of resisting putrefaction, the fermentative process readily takes place, contaminating the sugar, starch, and all the other constituents of the sap, and ultimately involving the whole woody structure in decomposition and decay when exposed to moisture, and a high temperature of the atmospheric air.

There are many instances showing that certain kinds of wood, such as pine, cedar, chestnut, etc., possess naturally greater durability than others, and that "it does not depend upon the *hardness* of the fiber, or the *closeness* of the texture," as J. R. B. says, nor indeed upon anything else pertaining to their organism; but it is generally owing to the circumstance that the juices in some kinds of wood contain relatively but a small quantity of the protein compounds heretofore described, as compared with the larger proportion of resin, oil, sugar, starch, and other non-nitrogenized constituents, some one or more of which they always contain, and which, by vir-

tue of their excess, and by their predominating and preservative influences over the former, counteract and prevent their putrefaction and destructive tendencies, and thereby preserve the wood from decomposition and decay. Many familiar examples might be cited corroborative of this opinion.

The following are the different methods commonly employed by which the putrefaction, decomposition, and decay of wood are checked and prevented, and thereby rendered durable:

1. By *painting* the surface to prevent the absorption of water and of oxygen, as with a mixture of the oxyde of lead or zinc and oil, or by besmearing it with varnish, pitch, or some resinous compound.

2. By *kiln-drying*, or by *seasoning* in dry air, to evaporate the aqueous portion of the sap, and thereby to render the protein compounds dry, hard, and insoluble, and therefore incapable of undergoing the spontaneous *putrefactive* fermentation and decay.

3. By *soaking in water* to dilute, decompose, and extract the sap, as is frequently done by lumbermen. In ponds where the logs are soaking for that purpose, it is a common occurrence for the surface of the water to be covered with a scum of the extracted sap. *Steaming* the wood is a process also employed for preparing timber for ship building and other uses.

4. By *kyanizing*, (the invention of Kyan.) This method consists in saturating the wood in a solution of corrosive sublimate, (perchloride of mercury.) It is done by soaking the wood, cut into blocks, planks, or boards, for seven or eight hours in a tank of the solution, made in the proportion of one pound of corrosive sublimate to five gallons of water. As the protein substances, both vegetable and animal, possess the characteristic property of being coagulated by this solution, the result of the process is, that when it is absorbed by the wood, and combines with the sap, the protein constituents of it are instantly converted into an insoluble coagulum, that is inert and not susceptible of putrefaction, or any other chemical transformation. The wood is rendered by this process very durable for any purpose.

There are other solutions which are also capable of coagulating the protein substances in the juices of the wood, and are used in the same manner for its preservation, as solutions of the sulphate of zinc, (white vitriol,) sulphate of iron, (copperas,) arsenious acid, etc.

It is upon the analogous principle of coagulating the protein constituents of the blood, that the ingredients used in the modern process of embalming the dead bodies of persons, act anticeptically and retard decomposition. It is effected by injecting into an artery, commonly of the arm, with a force pump, a solution of arsenious acid which permeates through the whole body, and on combining with the blood, instantly converts the albumenous and fibrinous portions of it into an insoluble and inert coagulum, and thereby checks fermentation and retards putrefaction and decay.

The bodies of birds and small animals are preserved in a similar manner for exhibition. Solutions of corrosive sublimate and sulphate of zinc produce the same effects.

JOHN B. MCMUNN, M. D.

PORT JERVIS, N. Y., MARCH 15, 1858.

TO REVIVE BLACK LACE.

STEEP the lace in porter which has stood long enough to become slightly stale, rub it about in a basin until perfectly soaked, then press out the liquid by squeezing, carefully avoiding wringing, which would tear or fray the lace. After stretching it to its proper width, pin it out to dry. This will be found preferable to the use of gum water for imparting to the lace the requisite degree of stiffening or dressing, and will make it appear as beautiful as when new.

Literary.

THE HEROINES OF ONEIDA.

AN ORIGINAL TALE OF NEW-YORK STATE, FOUNDED ON FACT.

[Entered according to Act of Congress, in the year 1852, by J. A. Nash, in the Clerk's office of the District Court of the United States, for the Southern District of New-York.]

Some few years before the Revolutionary War, a New-England family, whose zeal for the advancement of the Cross amongst the Indian race predominated over their love of the comforts of life, took up their residence near the confluence of the Sequoit Creek and the Mohawk on the borders of Lake Oneida. The son, a boy of six or seven years of age, and their daughter who was much younger, accompanied them. The former the good people had determined to devote to a missionary life; and the red man's introduction to the knowledge of Christianity, was to become the aim and end of his future labors.

In those times nature, in her sublime grandeur, spread far and wide over the surrounding country her towering forests, tracked only by the foot of the Indians; and the mark of civilization was there yet unknown.

Cautiously at first did the native tribes approach the new settlers; but by degrees their intercourse had become more intimate, and frequent visits of short duration were made to the "white man" by his tawny neighbors.

One summer's evening when Mr. and Mrs. Dean were sitting in front of their log house watching the gambols of their little girl and boy, and resting from the rugged toils which were inseparable from the mode of life they had now entered upon, they observed a party of Indians approaching, who, on arriving at the house, proved to be an old chief with whom they were acquainted, and his wife and family, consisting of two or three grown up sons, and a mulatto woman, that had on former occasions acted as interpreter for them.

The chief was named Han Yerry, and he was known to the Deans as one of the most influential men of the tribe of the Oneidas, to which he belonged.

The courtesies that usually passed upon similar occasions having taken place between them, the old chief addressing Mr. Dean said in an earnest manner:

"Are you my friend?"

"Yes," replied he.

"Do you believe I am your friend?" said the chief.

"Yes, Han Yerry, I believe you are."

"Then," said Han Yerry, "if you are my friend, and you believe I am your friend, I will tell you what I want; and then I shall know whether you speak true words."

"What is it that you want?" said Mr. Dean.

The chief reflected for a few minutes, looking around him as though searching for something, and then pointing to Mr. Dean's little girl, replied,

"My squaw wants to take that pappoose home to stay with us one night, and bring her back to-morrow. If you are my friend you will now show me."

The horror of the parents at this unexpected proposition, can be better conceived than described. The mother in her agony was about to catch up her little darling immediately, and run with her into the house; but Mr. Dean checked her. The tumult of conflicting feelings in his own breast was intense. He knew well that distrust was the ever prevailing feature in the character of the red man; and that unfortunately the treatment he had frequently experienced from the whites gave him too much cause for the existence of it. On the other hand, he knew that from time to time the Indians had shown much gratitude for kindness; and where their word

had been taken, they had usually been remarkable for a strict observance of their plighted faith. His judgment led him to the conclusion, that the proposal had been made to him honestly by the chief as a test of his own sincerity; and he therefore felt a confidence that if he complied with it, the child would be safe. Again he felt that, with the revengeful passions of the savage life, if he refused to place reliance upon the chief's word and aroused his anger, the life not only of his little daughter, but of his wife and the whole family, could, and probably would, pay the forfeit of his adverse decision. For with the red man every one who is not his friend must be his foe.

The agonized mother, whose thoughts on the subject were confined for the time to the simple alternative of keeping or parting with her little prattler, could scarcely believe the evidence of her senses, when she heard Mr. Dean, after a short pause, reply to the chief:

"Han Yerry, you are a father yourself, and therefore you can take my child; for I know that as you are my friend, you will take the same care of her that I would take of yours. But you promise me that to-morrow you will bring her home?"

"I will; and till then I will cherish her in my bosom, and protect her with my life," replied he.

The squaw who had advanced towards the little girl, and engaged her attention by kind endearments, now took her up in her arms, and in a few moments the party were lost in the somber hues of the surrounding forest.

It was long before Mrs. Dean could be convinced by her husband that he had acted wisely or justly towards their poor babe. However, when nature's first relief from intense suffering—a flood of tears—had somewhat restored the serenity of her mind; although still in doubt, she perceived the fearful alternative, the full extent of which had presented itself to her husband, and influenced his decision.

In misery was the coming night past in the log house. The morning dawned, and the first gray tints that herald its approach, met the eyes of the disconsolate mother as she sat at the window looking towards the point, in the wild landscape before her, at which the last glimpse of her dear child had disappeared from her view on the preceding night.

The day advanced, and its bright orb, dispelling the mists that hung around the foliage, had lighted up the forest with its meridian splendor. Still sat the mother at the window, her weary eyes dimmed by tears that she strove in vain to conceal. For well she knew that every pang that wrung her breast had its fellow in that of her beloved husband; and she would not willingly increase the severity of his sufferings by adding to them that testimony of her own.

The shades of night were fast drawing near, and still no sign appeared of the lost child. The father almost repented his own course, and half wished he had resolved on any other alternative—he knew not what—rather than that he had adopted. To attempt to follow or trace the Indians, he was aware would be futile; for independently of the impossibility for his inexperience to find their trail, he well knew that if they had played him false, and intended to steal the child, their swift motions and knowledge of their hunting grounds would enable them to elude his vigilance, even if he came within sight of them. The only thing, therefore, that the wretched parents could do was to watch on still!

The moon had risen and silvered over the limpid stream that murmured onward through its devious course at the foot of the rising ground on which their house was placed, and the hopes of the anxious parents were ebbing fast to the verge of extinction, when figures were dimly discerned in the extreme distance, and in a few minutes the tall form

of the chief and mulatto woman were disclosed to the gladdened eyes of Mr. and Mrs. Dean. On the shoulders of the former sat their little daughter, but so changed in appearance that her identity was at first equivocal. The white man's pappoose had been converted into the red man's pappoose; for its new friends had dressed it entirely in their Indian costume.

"There is your child," said Han Yerry. "Now I know you are my friend; you have shown me now that you trust Han Yerry; from this day we will be one. Never can you want a friend to fight your battles or avenge your wrongs whilst Han Yerry draws breath."

From this time the intercourse between the new settlers and their Indian friends increased; and the latter afforded much valuable assistance to them.

A few years only had elapsed since the stirring events that we have mentioned, when the future of their son required that he should become familiar with the language and habits of the race to whom his labors were to be devoted; and as he had now no misgivings upon the subject, Mr. Dean resolved to send his son, now fifteen years of age, to pass some years with the Oneidas, for the purpose alluded to.

This course having been determined on, Mr. Dean sent for his friend, Han Yerry, and thus addressed him:

"Han Yerry, you put me to the test when our friendship first commenced, and we have now known each other long enough to render any further proofs on either side to be unnecessary. But I am now about to afford you good evidence that my confidence in you does not confine itself merely to a trust in your fidelity, but extends to a reliance on your judgment. You worship the Great Spirit, and you do well; but you know not much of his attributes and goodness that the white man has been made acquainted with. To tell your people that, would make them good and happy; but to do it, the white man must know how to talk in your own tongue. I am too old, and my life is too far run out to do your people good in that way; but my young son here will devote his future life to the purpose. Take him with you for a time, and teach him your way of life. When he has learnt to live as you live, to learn your ways and to talk your language, he will know how, when he grows a man, to counsel you, and to make your people understand the things they do not know. But you must remember that all around him will at present be strange to him; and that as he will have no one but you for his friend, upon you alone will he depend for succor and for comfort. Twice a year bring him home to me, that we may thank you for your care of him, and have together some days of happiness and love. And at some future time will your sons, if not yourself, bless the white man who first taught you to look up aright to that Great Spirit that made both him and you."

Whilst Mr. Dean was speaking the eyes of Han Yerry, fixed upon him, filled with tears, and his whole frame gave indisputable evidence of deep emotion. (For during the past few years of their intercourse he had learnt the white man's tongue.) As soon as he ceased, Han Yerry seized Mr. Dean's hand and raised it to his lips.

"My friend, my friend," said he, "if all white mans were like you, all red mans would love him too. Your son, no more your son alone, but mine too. My squaw shall love him and take him for her son, and he shall be taken by our chiefs into the Oneida tribe. And woe to white man or red that touches my new son's head."

The arrangements for young Dean's departure were soon made, and the well grounded confidence of his parents relieved their minds from any feeling of anxiety beyond that consequent upon their son's separation from them, to commence the walk in life that they had

marked out for him; and which the scenes of forest life with which he had now been for some few years familiar, well fitted him to encounter. Of a sturdy frame of body and of a buoyant and ardent temperament, the lad himself stood quite ready to seek and take part in those adventures which the anecdotes that he had heard, had taught him to be inseparable from Indian life; and he entered upon his travels, therefore, with all the enthusiastic anticipations that a young English nobleman, of the same era in the world's history, started with from London under the surveillance of his tutor to make the "Grand Tour."

Young Dean soon became accustomed to his new mode of life, and was adopted into the tribe as the son of Onata, the wife of Han Yerry, to whom as well as to her husband he soon became attached, from the care and anxiety which they uniformly manifested towards him. Open hearted and sprightly he quickly made friends of the younger members of the tribe, and partook alike of their amusements and toils. The latter consisting principally of hunting and preparing the skins of the animals that rewarded their rude sportsmanship.

Amongst the young men of the tribe the son of the head chief, whose name was Omi, had especially attracted James Dean's attention by his proficiency in field sports, and the success and tact that marked his career as a hunter. He was some half dozen years beyond young Dean in age, with an athletic, well developed frame. Omi had no idea, however, that a batchelor's life was essential to his notions of forest freedom; on the contrary he had long cast a wistful eye upon a young maid of the tribe. The beautiful Howala was a maiden of his own age, and formed in a mould that Venus might have lent to celebrate her birth.

It was now some four years since young Dean had joined the Oneidas, and he had become so much one of them, that they would willingly have kept him amongst them altogether. But the time was approaching when he had arranged with his father upon the last occasion of his temporary visit to him, that he should take leave of Indian life, and return home to prepare himself by a course of study at Dartmouth College for the future duties of a missionary.

The tribe was then on their journey from a distant hunting excursion to the neighborhood of his father's settlement, and he was anticipating the pleasure in another month to enjoy that flood of happiness which, be it regal or humble, is the blessed attribute of "home."

Strolling one afternoon over an open glade in the forest, from the interior of which the view was excluded by a dense thicket of underwood, he heard the piercing shrieks of a female voice quickly reiterated in strains of poignant grief.

Dashing through the thicket into the forest in the direction from which the sounds issued, he at once perceived their cause. At a distance of a few yards from which he stood was his friend Omi struggling in the embrace of a huge bear, and a little way off stood the lady-love Howala wringing her hands in helpless misery, and screaming at the top of her voice.

Young Dean was unarmed, and had no weapon save his knife. Hastening to the scene of contention, he plunged the knife into the beast aiming at his heart, but it struck against a bone. The wound produced pain enough, however, to induce the animal to let go his grasp on Omi, and turn upon his new assailant. The injuries that the bear inflicted upon Omi wholly incapacitated him from continuing the contest, and the whole rage of the infuriated animal was now, therefore, concentrated upon Dean. The fight was sharp and close; Dean was active, and contrived to avoid the embrace which his adversary vainly tried to fix upon him, and plying his knife nimbly, he inflicted numberless wounds,

without being able to strike in a vital part. It must not be assumed, nevertheless, that the laurels were all on his side. Bruin used his claws as efficiently as Dean did his knife. Dean felt that his exertions, added to weakness from loss of blood, rendered it impossible for him much longer to continue the unequal contest; and he knew that unless he could strike the heart, there was no means in his power to put an end to it. Summoning, therefore, for the effort, all his remaining strength, he rushed into the extended arms of the bear, driving his knife before him into the animal. Fortunately he was this time successful; but his victory was gained at the bare preservation of his life, for at the same instant that he delivered the fatal blow, the bear, in its attempt to hug him, had also fixed her huge jaws into Dean's left shoulder, and inflicted a wound of fearful character. They both fell together; and although released by the death of the animal from a grasp which had only been half clinched, Dean remained faint and senseless on the ground.

Omi laid helpless beside him; but as soon as Howala was relieved by the death of Bruin from fear about her lover, she ran off with the swiftness of an arrow for help; and a few minutes sufficed to bring her relations to the spot.

The wounded men were immediately removed with all the care their primitive means afforded, and became objects of the unremitted anxiety and solicitude of the whole tribe. Han Yerry and his squaw watched over young Dean day and night; and the mother of Omi, informed by her intended daughter-in-law that nothing could have saved the life of Omi had not Dean released him from the bear, divided her care between her son and young Dean.

The lacerated nature of the wound on the shoulder rendered it doubtful for some time whether permanent injury to the arm would not result. Too far buried in the forest to obtain medical aid beyond that of his adopted tribe, young Dean lay many weeks a cripple; but with youth and a hardy constitution in his favor, nature prevailed at last, and rewarded the assiduous attentions of his nurses with success. The wounds which they had bound up gradually healed; and except from the presence of seams here and there on his limbs, which remained as permanent memorials of his prowess, he at length was enabled to resume his journey homeward, which these events had thus unexpectedly delayed.

The powers of endurance and the resolution that the bear fight had so prominently called into action, were not thrown away upon a race, in whose estimation courage and physical energy are among the first steps to pre-eminence. The elder chiefs now were loud in Dean's praise, and profuse in their professions of friendship; and it was determined to reward the white man that had thus saved one of their number at the expense of so much danger and suffering, with a memorial of their regard and esteem. For this purpose they held a solemn council, in which it was resolved to make him a present of a tract of land, in such locality as he should select, when he was of an age to determine upon his future fortunes.

The longed-for hour at length arrived that restored James Dean to his father's home, but which was to separate him from forest life and forest friends. Han Yerry and his wife were deeply moved when the time for separation came, and Howala and Omi's mother were little less willing to part with him. His young friend Omi, however, consoled them all with the assurance that neither space nor force should long separate him from the preserver of his life—an assurance which young Dean knew his character well enough to place implicit reliance upon.

The next few years of his life were spent by young Dean at Dartmouth College, shortly after which he had the mis-

fortune to lose his parents, who quickly followed each other to the tomb; solaced, nevertheless, by the reflection that they had lived to see their son grown up to manhood, and well provided with friends amongst those to whose benefit they had designed his future labors should be devoted.

Circumstances, imperious in their character and uncontrollable in their nature, soon occurred which completely changed the current of James Dean's after life.

(TO BE CONTINUED.]

THE MECHANIC.

A YOUNG man commenced visiting a young woman, and appeared to be well received. One evening he called at the house when it was quite late, which led the girl to inquire where he had been. "I had to work late to-night," he replied. "Do you work for a living?" inquired the astonished girl. "Certainly," replied the young man, "I am a mechanic." "My brother doesn't work," she remarked, "and I dislike the name of a mechanic," and she turned up her pretty nose.

This was the last time the mechanic visited the young woman. He is now a wealthy man, and has one of the best of women for his wife. The young woman who disliked the name of a mechanic is now the wife of a miserable tool—a regular vagrant about grog-shops—and she, poor and miserable girl, is obliged to take in washing in order to support herself and children.

Ye who dislike the name of a mechanic—whose brothers do nothing but loaf and dress—beware how you treat young men who work for a living. Far better discard the well-fed pauper, with all his rings, jewelry, brazen-facedness and pomposity, and take to your affections the callous-handed, intelligent and industrious mechanic. Thousands have bitterly regretted their folly, who have turned their backs on industry. A few years of bitter experience taught them a severe lesson. In this country, no man or woman in health should be respected, in our way of thinking, who will not work bodily or mentally, and who curl their lips with scorn when introduced to hard working men.—*Ed.*

THE FARMER.

HERE is another. It came within our own knowledge—is true to the letter.

Jemima Drake was a beautiful girl. Her father was a farmer. His wife was a farmer's wife and a good one too—loved her husband, was faithful to her family, had but one fault, and strange was it that she had that one, but it was so;—she always felt that it would have been a little better to have had a husband, as good every way as hers, who had some other employment; and she cherished a hope, seldom uttered, that her daughters would marry well, but would not marry farmers.

Jemima was twenty, with all the glories of young, blushing, just developed womanhood upon her. There were corn-shuckings, quiltings, apple parings, and all such pleasant things in the neighborhood. The *young* folks saw each other at church, and sometimes met between Sundays. James Darlington loved Jemima. John Davenport and Joseph Clark loved her. Jemima loved James, and could have loved John and Joseph just as well as not. She was a girl to love and to be loved. Any young man would have been a heartless fellow not to have loved her, and any girl, not to love James Darlington, would have shown a lack of appreciation for the good and the true hearted.

Between these last two there would have been a solid, bona fide engagement but for the advent in that quiet neighborhood of Mr. Silk Ribbon, from New-York. He talked large, told of brisk business, and rejoiced in princely prospects. Jemima, partly with the hope of a big house up-town, and more to please her mother, delayed to make engagements with James, and in less than a year married the New-York merchant—that was to be.

We must hasten to the end, for we hate a long story. Mr. Silk Ribbon has made money, and lost it; has been up and down in the world, and is just now

down low enough. Twenty years of city life have added nothing to Jemima's charms. Her life has been one of comparative ease, but of incessant agitation by elating hopes and depressing fears; and now at the age of forty she has no very flattering prospects.

James Darlington mourned, as who would not, that she should prefer another. But there was Kate Grimes at the next house. She was plain, modest, good, a true-hearted girl, of eighteen. Her mother was forty, and was handsome. Who could tell but Kate would be like her when she should have borne the cares of womanhood a few years. James Darlington was quite willing to take the risk.

He soothed his sorrows for the loss of his first love, and took the second. He is not rich. You do not hear him talk of millions. But he has provided admirably for the comfort and the education of a family as large as a small flock. He has been prosperous in what the Silk Ribbons would call a small way; but it has been large enough to insure solid happiness; and to-day Kate Darlington, among the host of promising boys and girls that are grown and growing up in the farm-house, looks ten years younger and a great deal happier than Jemima Ribbon; and she has not a single fear, when her husband goes out, that he will encounter a dissatisfied creditor.

Miscellaneous.

THE WEATHER.

APPEARANCE OF BIRDS, FLOWERS, ETC., IN NICHOLS, TIOGA CO., N. Y., IN FEBRUARY, 1858.
By R. Howell.

Feb.	7 A.M.	2 P.M.	9 P.M.			REMARKS.
1	4	34	28	East.	Cloudy.	Snow commenced at 5 P. M., and turned to rain.
2	34	41	35	S.&N.	"	Light rain at intervals all day.
3	34	36	28	West	Fair.	
4	24	30	20	N. W.	"	
5	13	26	19	"	"	
6	20	29	27	N.&S.	"	
7	37	37	30	S.&W.	Cloudy.	
8	26	27	14	North	"	Snow squalls.
9	23	38	37	S. E.	"	Snow squalls.
10	29	26	12	West.	"	Snow squalls.
11	3	12	-2	"	Fair.	Light snow squalls.
12	10	25	6	S.&W.	"	Crossing on the ice on the Susquehanna River at Fonda.
13	1	22	17	S.&N.	Cloudy.	Snow commenced in the evening about 7 o'clock.
14	15	26	24	"	"	Snow at intervals all day.
15	16	20	2	N. W.	"	Snow squalls all the forenoon.
16	20	20	7	"	"	Snow squalls in the forenoon.
17	4	12	-3	"	"	
18	7	18	1	"	"	Lunar halo at 7 o'clock, P. M.
19	4	12	17	"	"	Snow commenced about 11½ A. M., and continued all P. M. from N. W.
20	15	30	21	"	"	Snow continued from yesterday.
21	12	38	27	S. E.	"	A few flakes of snow in the evening.
22	15	22	14	N. W.	"	Susquehanna River frozen so as to cross with teams a number of places.
23	10	22	-3	North	Fair.	
24	-13	31	22	S. E.	"	
25	20	37	28	S. W.	Cloudy.	A few flakes of snow in P. M.
26	22	36	14	"	Fair.	
27	18	49	38	S. E.	"	
28	38	50	34	S.E.&S.	Cloudy.	Light rain commenced at 5 P. M.

METEOROLOGICAL.

CHAPMAN'S PRECALCULATIONS.

[*Entered according to Act of Congress, in the year 1856, by L. L. CHAPMAN, in the Clerk's Office of the District Court, for the Eastern District of Pennsylvania.*]

FIRST DEPARTMENT.

EXPLANATORY.

THE TERM POSITIVE is here given to conditions abounding *more* with *vital electricity*, inspiring *more* health, vigor, cheerfulness, and *better* feelings for business intercourse, etc., and consequently *greater success*, *enjoyment*, etc.

THE TERM NEGATIVE is given to those conditions which *abound less* with electricity, and consequently *are more unfavorable* to health, feelings, business, social intercourse, etc.

¶ Indicates Sundays.

FOURTH MONTH, (April,) 1858.

Tendency. *Time o'clock*

1st, Negative, from 1 morn to 12 noon.
Positive, from 1 to 12 eve.
2d, Mixed, from 1 morn to 2 eve.
Negative, from 2 to 12 eve.
3d, Positive, from 1 morn to 12 eve.
4th, ¶ Positive, from 1 morn to 12 eve.
5th, Negative, from 3 morn to 12 eve.
6th, Negative, from 1 to 9 morn.
Positive, from 10 morn to 1 eve.
Negative, from 2 to 12 eve.
7th, Negative, from 6 morn to 2 eve.
Positive, from 3 to 12 eve.
8th, Positive, from 1 morn to 12 eve.
9th, Positive, from 1 to 6 morn.
Negative, from 7 morn to 3 eve.
Positive, from 4 to 9 eve.
10th, Mixed, from 1 to 11 morn.
Positive, from 12 noon to 12 eve.
11th, ¶ Mixed, from 1 morn to 6 eve.
Positive, from 7 to 12 eve.
12th, Negative, from 6 morn to 12 eve.
13th, Negative, from 1 morn to 6 eve.
Positive, from 7 to 12 eve.
14th, Positive, from 1 morn to 12 eve.
15th, Positive, from 1 morn to 12 eve.
16th, Negative, from 1 morn to 12 eve.
17th, Negative, from 1 morn to 12 eve.
18th, ¶ Negative, from 4 morn to 5 eve.
Positive, from 6 to 12 eve.
19th, Mixed, from 3 to 7 morn.
Positive, from 8 morn to 12 eve.
20th, Negative, from 1 to 9 morn.
Positive, from 10 morn to 12 eve.
21st, Negative, from 3 morn to 12 eve.
22d, Positive, from 1 to 7 morn.
Negative, from 8 morn to 5 eve.
Positive, from 6 to 12 morn.
23d, Positive, from 1 morn to 12 eve.
24th, Mixed, from 1 to 10 morn.
Positive, from 11 morn to 12 eve.
25th, Positive, from 1 morn to 12 noon.
Mixed, from 1 to 12 eve.
26th, Positive, from 1 morn to 4 eve.
Mixed, from 4 to 12 eve.
27th, Negative, from 7 morn to 10 eve.
28th, Positive, from 1 morn to 12 eve.
29th, Negative, from 4 morn to 3 eve.
Positive from 4 to 12 eve.
30th, Positive, from 1 to 6 morn.
Mixed, from 7 morn to 12 eve.

SECOND DEPARTMENT.

The changes are four minutes *earlier* for each degree of longitude (60 miles) west. Difference of latitude in the same meridian is immaterial. The dry conditions are fair, and the damp conditions cloudy or wet, at least three or four times out of five in the average. When fair, the damp conditions diffuse a cool, damp sensation through the atmosphere.

Blanks indicate very weak, or mixed, or uncertain conditions.

¶ Indicates Sundays.

FOURTH MONTH, (April,) 1858.

Time o'clock. *Ray-angle.* *Tendency.*

1st, At 10 morn R" warm, dry.
At 11 morn YV' cool, damp.
At 12 noon Y' warm.
At 6 eve I,, cool, damp.
At 10 eve . ——
2d, At 5 morn V" cool, damp.
At 6 morn GB- windy.
At 7 morn Y' warm.
At 2 eve O- ——
At 3 eve BI" cool, damp, windy.
At 12 eve GI" cool, damp.
3d, At 1 eve .. wind stirring.
At 3 eve Y,, warm, dry.
At 6 eve I, cool.
4th, ¶ At 8 morn .. warm.
At 10 morn · ——
At 11 morn G,, warm, dry.
5th, At 3 morn V, cool.
At 7 morn R' warm.
At 12 eve V' cool, damp.
6th, At 9 morn Y" warm, dry.
At 1 eve R,, warm.
At 7 eve I" cool, damp.
7th, At one morn YO' damp, windy.
At 5 morn G" warm, dry.
At 6 morn V,, cool, damp.
At 2 eve B" wind stirring.
At 4 eve O.. ——
At 11 eve Y, warm, dry.
8th, At 3 eve O,
At 8 eve G, warm, dry.
At 12 eve Y,, warm, dry.
9th, At 6 morn B, wind stirring.

At 3 eve V,, cool, damp.
At 9 eve G,, warm, dry.
10th, At 6 morn Y' warm.
At 8 morn B,, wind stirring.
At 10 morn R, warm, dry.
At 11 morn I' cool, damp.
At 12 eve V, cool.
11th, ¶ At 8 morn R,, warm, dry.
At 12 noon I,, cool, damp.
At 6 eve YI" cool, damp, windy.
At 9 eve V,, cool.
12th, At 6 morn O,, damp.
At 11 morn R' warm.
13th, At 8 eve I" cool, damp.
At 6 eve Y- warm.
At 10 eve O, damp.
14th, At 2 eve G- warm, dry.
At 9 eve I, cool.
15th, At 3 morn B- wind stirring.
At 2 eve R- warm, dry.
At 4 eve I,, cool, damp.
16th, At 1 morn V- cool.
At 9 morn O" ——
At 8 eve " warm.
17th, At 10 eve G' warm.
18th, ¶ At 3 morn Y,, warm, dry.
At 5 eve R' warm.
19th, At 2 morn G,, warm, dry.
At 7 morn O' ——
At 6 eve R,, warm, dry.
At 8 eve I- cool, damp.
At 12 eve G, warm, dry.
At 7 morn, end of the zodiacal period, or natural month.
20th, At 9 morn Y" warm, dry.
At 12 noon O,, ——
At 5 eve R, warm.
21st, At 2 morn V, cool.
At 10 morn G" warm, dry.
At 12 eve R' warm.
22d, At 7 morn RI,, cool.
At 10 morn V" cool, damp.
At 5 eve O" ——
At 7 eve Y,, warm, dry.
23d, At 1 morn BI,, cool, damp, windy.
At 11 morn BR- warm, windy.
At 10 eve G,, warm, dry.
24th, At 7 morn I,, cool, damp.
At 8 morn R,, warm, dry.
At 10 morn · ——
At 6 eve V,, cool, damp.
At 7 eve Y, warm, dry.
At 11 eve O,, ——
25th, ¶ At 12 noon .. wind stirring.
At 10 eve V' cool.
At 11 eve G, warm.
26th, At 6 morn R, warm.
At 4 eve V, cool.
At 5 eve I" cool, damp.
27th, At 7 morn . ——
At 10 eve Y" warm, dry.
28th, At 2 morn GI,, cool, damp.
29th, At 3 morn GR- warm.
At 4 morn I,, cool.
At 6 morn R" warm.
At 7 morn B" windy.
At 11 morn " warm.
At 3 eve V" cool, damp.
At 7 eve O- ——
30th, At 5 morn RV,, cool, windy.
At 6 morn GB- windy.
At 10 morn I' cool, damp.

GENERAL REMARKS.

Cool Periods, longer and more prominent, are more liable near the 1st, 11th.

Greater tendency to windy, cloudy or stormy periods, or gusts, near the 1st or 2d, 7th, 11th, 23d.

Periods more prominently negative near the 1st, 2d, 7th to 11th.

Periods of greater electrical deficiency, 1st to 20th.

The natural zodiacal tendency to dry during the month is liable to be much superceded by the nature of the combined currents, intercepted, so much so, perhaps, as to give a more than usual tendency to damp.

GENERAL BEARINGS.

The prevailing electrical tendency from the 1st to the 20th is *negative*, bearing *less favorably* upon health, business and social feelings. I fear not only unusual prevalence of sickness and of spreading disease in epidemic forms, but from the *unusual* deficiency in electrical supplies from the 3d to the 20th, I judge that the cholera will be developed to a greater or less extent in some places during some part of that interval, if the peculiar tendencies of the spring season do not counteract. The bearing of the last week of April is more positive.

I judge that the progress of vegetation will be slow during that interval, and fear that *that* which is more early will receive a check from the cool change indicated near the 11th inst.

COINCIDENCES.

From Feb. 1st to 28th.—Since the 1st of January, I replied to many inquiries that the natural causes which usually produce the coldest weather in winter would operate *near the 14th of February*, which was the date given in the above interval. The coincidence with this date, and with the indications given on the 9th eve, 14th morn, and 16th eve fully corroborate the precalculation. The cool change on the 26th, eve, was slight.

Editor's Table.

AMERICAN INSTITUTE FARMERS' CLUB.

At a meeting held at the Society's rooms in Broadway, March 16th, President Pell in the chair, several important and interesting papers were read by Secretary Meigs.

One was on *Steam Cultivators*, from which it appears that the Royal Agricultural Society of England have, after a trial by four competitors, recently awarded their premium of 500 sovereigns ($2,500) to Mr. Fowler's machine, though not as perfect as they could have desired. (Yankee ingenuity will yet do what British genius has not accomplished—make steam plowing cheaper than plowing by animal power.—Ed.) Judge Meigs expressed the belief that steam plowing will succeed on large, unbroken extents of arable land. (Most assuredly it will, but nowhere else.—Ed.) He said, "we can not be successful farmers if we discard the working ox. We can never dispense with oxen and cows."

A discussion took place in the progress of the meeting on the Long Island lands, particularly the central regions, embracing from one to two hundred thousand acres, known in common parlance, though wrongfully, as *the barrens*. These lands are wholly uncultivated. Various opinions were expressed concerning them. We find ourself represented in some of the daily papers as having said that "these lands would not pay for cultivation except on the old skinning process of surface tillage." We warn our readers that we said no such thing, and we hope the reporter, who represented us as saying it, will hit nearer the truth next time. What we did say was, that to subdue these lands, to bring them to a high state of productiveness, to erect buildings and make fences, where there is no timber but stunted pines and scrub oaks, to procure water, where none exists but far below the surface, and to create an inviting homestead, would require capital; that it would be a good employment of capital, and would pay well in the end; but that the poor man could not undertake it, because he could not get a sufficiently speedy return for his labor. This we said, and nothing more, and this we are willing to stand by.

Solon Robinson, Esq., of the New-York *Tribune*, read an exquisitely amusing and a really instructive paper on the *grindstone*, as an index to agricultural progress and of advancing civilization. Our readers will have seen it in the *Tribune* before this reaches them, or we would publish it entire, that they might have before them a short way of ascertaining whether a man is progressing or retrograding in the world, viz., to look at his grindstone, for if that is right, everything else is, and the man is going ahead. (Wonder if anybody has lately made a large importation of the article.)

Dr. Wellington read a long and exceedingly valuable paper on Agricultural Education, the substance of which will be found in many of the daily, and we presume of the weekly papers.

Hedges and Evergreens; A complete manual for the cultivation, pruning, and management of all plants suitable to American Hedging, especially the Maclura or Osage Orange; Fully illustrated with engravings of plants, implements, and processes; To which is added a treatise on Evergreens, their different varieties, their propagation, transplanting, and culture in the United States. By John A. Warder, Editor of the *Western Horticultural Review*, President of the Cincinnati Horticultural Society, etc. New-York: A. O. Moore, Agricultural Book Publisher, 140 Fulton street. 1858.

In his Preface, the writer of this book says: "The subject is one of immense importance to the future of this country,

inasmuch as it is an efficient aim of the great agricultural interest. The people of these United States have settled the question of distinct inclosures, whether wisely or unwisely, in the affirmative. Fences of some kind being one of the recognized institutions of the country, and the majority of our best farms being destitute of rock for walls, and being rapidly divested of timber for wooden fences, foreign materials, whether of boards or iron, present themselves as candidates for public favor; and I here beg to offer that agreeable alternative—the useful, the economical, the practical, and at the same time, ornamental, Live Fence or Hedge."

We fully agree with Mr. Warder in the importance of his subject, and as we believe he has treated it with ability and fairness, we commend his work to all wishing to be informed, with regard to the increasingly interesting and important subject of live fences, as a substitute for others, for which materials are already becoming scarce. If the same or a little more ground than is required for other fences to stand upon, or as too often happens, to lie down upon, can be made to grow a live fence perpetually, it is worth considering.

Fifth Report of the Children's Aid Society; New-York, 1858. John L. Mason, Esq., is President of this society; J. E. Williams, Esq., Treasurer; and C. L. Brace, Secretary. It would appear from this interesting and able report, as well as from facts that have come to our knowledge from other sources, that the Children's Aid Society is doing, and doing efficiently and economically, a great and good work, in alleviating distress, in preventing crime, and in promoting industry. We believe that Secretary Brace and his coadjutors are eminently worthy of the public confidence. May God and man speed their work.

Belding's North Western Review, Vol. 1, No. 9, is on our table. This is a good number, and we see it contains a valuable agricultural department. It is published at Keokuk, Lee Co., Iowa. Success to it. Its editor shows the right spirit in the matter of agricultural improvements, and we wish he may go ahead and prosper. Farmers of Lee county, sustain your own paper first, and then we will send you ours, if you want another; but we never yet asked a farmer to neglect his own State paper and take ours, and we never will.

The Farmer and Planter, Vol. 9, No. 3, is an excellent number, as all the numbers of that work are. To the S. C. planters, we cheerfully admit that their own editor can tell them many things about southern agriculture better than we, and we say to them the same as to Iowa farmers above—support your own journal first, and then ours if you can afford it.

Monthly Bulletin of the United States Agricultural Society, Washington, Vol. 1, No. 1. This is a neat work of 8 pages, 8vo., and the present number contains an interesting, and we have no doubt, a far more correct report of the late proceedings of the U. S. Ag. Soc., than usually gets into the daily papers. Such a journal, whether to be issued occasionally or statedly, will not fail to be useful.

The Repository; Devoted to the cause of Truth, Virtue, and General Intelligence. Vol. 1., No. 1.; New-London, Conn.; by W. H. Starr & Co. This is a small sheet, but bright and readable, and filled with valuable matter; to be issued weekly at $1 a year.

A VALUED correspondent, who commends our work more highly than we should dare, criticises us on one point in this wise: "What have such narrations as the 'Hermitess of South Salem' to do with agriculture?" Ah! friend, not much, we confess. But then, after giving forty pages of agriculture and horticulture, we must have a little change for variety's sake; and a well written tale, founded on facts, and illus-

trating the early history of the country, and bringing us into communion with our forefathers, will please the boys and girls—will do them good—will benefit us all. Just look at it in that light and be liberal. That you will, friend, we have not one doubt, for we see that you are inclined to be generous.

R. H., on the corn crop, and the varieties for different localities, shall appear in our next.

W. H. G., on *The Culture of the Mind*, (a good subject, and well treated in a short space,) shall also appear in our next.

To T. T. T.—You ask us to "give the best, most simple, and sure way for farmers to make their own superphosphate of lime." We can not in this number. Will endeavor to do so soon.

To D. L.—Is the money expended in the importation of seeds, by the Patent Office Agricultural Department, misapplied? We fear it is, much of it; and yet we feel that the gentleman who presides over that department, has a difficult task to perform. The trial of new plants for our climate is undoubtedly important; and we rejoice that something is being done by Congress to aid in the necessary experiments; but could wish that the business could be so managed through the Patent Office as to encourage and not to discourage home industry. More we are not prepared to say at present.

To the Press.—We are about to correct our exchange list, and to reduce it somewhat. In doing so, it is more than possible that we shall cut off some who are fully entitled to our magazine. Should any find themselves dropped, to whom we owe the work, by any former contract, either expressed or implied, we beg they will inform us at once, as we will shrink from no real obligation, while at the same time we wish to diminish that class of exchanges which is merely a matter of courtesy, with little benefit to us and perhaps none to the other party, owing to the diversity of objects pursued by the journals exchanged.

What's there? On having occasion to cross Park Square, hard by our office, since writing our last item, we were surprised to observe about thirty big sheep standing and lying at ease, chewing the cud, and seeming wholly untroubled as to the object which may have brought them to town. On inquiry we learned that they are the property of Samuel and John Ferran & Co., and were here for exhibition to the passers-by, perhaps to sharpen public appetite for mutton chops and the like. They were grown by Mr. Hugh, of or near Clinton, N. J. Their live weight, we were told, averages 250 lbs. Four are a cross of the Bakewell on the Merino. These were as large as any others. The rest were Bakewells. The wool of the four cross breeds is of a fair quality, that of the others long and coarse. The average of the fleeces can not be much less than 10 lbs. Our reflection is, that sheep of from 200 to 300 lbs. weight, with wool fine enough, in some cases, to make our bed blankets of, and from that to the quality fit for our coats, ought to be more common among us than they are. No meat is healthier. Some, at least, are fond of it. Many like it for a change. The growing of it is not very expensive, and, with a moderate return for the wool, could hardly fail to pay, and yet a good-sized, well-fattened sheep is rather a marvel in this good city of New-York.

An Old Subscriber, who sends us two new names, with the money, one of them the name of his pastor, to whom he gives the work as a token of good will, says:

"I wish I could do more to circulate your magazine. I am well acquainted with several of our best agricultural publications, and I *know* that yours is *second* to no other. It only needs to be known to procure for itself a wide circulation. It has greatly improved since

it came into your hands. I like the discrimination you exercise when giving advice to farmers. The article on deep plowing illustrates my meaning. That article respecting the cleanliness and ventilation of cellars would save much sickness if heeded as it ought to be. The Cattle of New-England is a very valuable essay. Is not the weight given on page 144 too large for *any cattle* raised in New-England or elsewhere?"

Answer.—Few men who write with spirit and force enough to be read, fail of making some rather extravagant statements; and the New-England Cattle man certainly deserves much credit for his research. Few, if any, could have furnished the valuable historical matter that he has, and the view he has taken of the origin and crossing of the cattle of this country by early importation is one of great interest. The men that came to this country were not the worst in Old England; and our friend thinks the cattle were the best, and are still. Our pages are open for temperate articles on the other side, and for more on this. Our own article on breeds of cattle must be again deferred, as we do not like to have too much of one thing in the same number.

Of course our readers can do as they like about believing the story in this number, from some down-east paper, of the 5,800 lb. bull in Maine. To us it sounds amazingly large, and we should think it might be set down for a whopper.

We invite attention to the advertisement of J. A. Wagner. We have not seen his harvester in operation, but it appears like a very perfect machine, and we should think that it would work well. A sample is to be seen at the Globe Iron Works in this city. Many who have seen it have, to our knowledge, expressed the highest confidence in its success; and we understand that it has a diploma and two medals at different exhibitions of the American Institute, also a diploma and a medal from the committee of the World's Fair in New-York, and higher testimonials than were given to any competing machine.

The *Granada* (Miss.) *Republican*, we see, has enlarged its Agricultural department, under the head of "Rural Gentleman." Its motto is "Too much study can not be bestowed upon agriculture"—a good one, and the spirit is well be carried out.

In speaking of *Baker's Rotary Planing Machine*, in a former number, we said that the price was from $25 to $7.50, according to size. This is beyond question a valuable machine, and it seems to us very cheap, but we did not mean to say that it could be had for $7.50. A comma did the mischief in part, and a 0 in part. It should have been $25 to $75.—Ed.

NEW-YORK LIVE STOCK MARKET, ETC.

WEEK ENDING MARCH 16, 1858.

Average number of *beef cattle* received weekly, 3,143. Number received last week, 2,572. Number this week, 2,100, or 1,043 less than the general average.

Prices from 10½c. for premium cattle, to 6½ for poorest quality. General selling prices from 8c. to 9½c. Average of all sales from 8½ to 8¼c., nearly half a cent less than last week.

Of Milch Cows with Calves, not a large number was received. Sales of poor from $25 to $30; of good, from $30 to $40, of extra, of which there were but few, from $40 to $50.

Calves weighing 100 lbs. net sold as low as $3. Some that were uncommonly fine, sold as high as 7c. per lb. Market bad.

The demand for live sheep was very limited. Carcases and hind saddles arrived in large quantities from Albany and Philadelphia, the former selling at 7c. the lb. Sheep brought to this market usually dress just about half the live weight. Those that are fat and small boned give as high as 55 lbs. to the 100, and in rare cases 60 lbs.

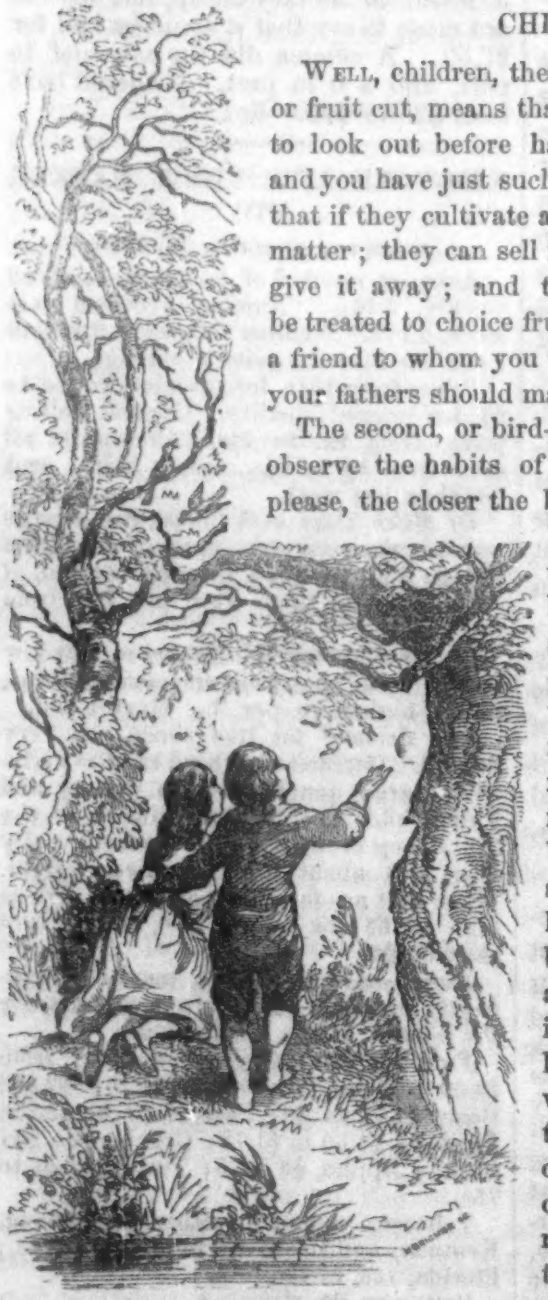
Swine.—Arrivals large, markets abundantly supplied. Prices from 5½c. net, for the poorest, to 7½c. for the best.

Potatoes, according to quality, from $2.50 to $5 per bbl.; Onions, $1.75 to $2.50; Beets, $1.75 to $2; Carrots, $2 to $2.25; Parsnips, $1.50 to $1.75; Cranberries, $11 to $14; Apples, $3 to 5; Turnips, 62c. to 75c.

Tobacco, demand rather improving. Kentucky and Maysville, per lb., 8½ to 14c.; Florida, 15c. to 25c.

Cotton on the rise.

CHILDREN'S CORNER.



WELL, children, these little cuts have a meaning. The first, or fruit cut, means that now is the time to tease your papas to look out before hand, and see that they and your mamas and you have just such fruits in the fall, and you may tell them that if they cultivate a little more than is wanted at home, no matter; they can sell it, in all probabilily, and if not they can give it away; and there are always enough who like to be treated to choice fruits; nd then, haven't every one of you a friend to whom you would like to make a present of fruit, if your fathers should make a mistake, and raise too much?

The second, or bird-nesting cut, signifies that children may observe the habits of birds and insects as closely as they please, the closer the better, for there is a great deal to be learned from animate nature, but that they should not wrong the birds by breaking up their nests. If your parents approve you may take a single egg of each kind of bird, and blow it, and then varnish the shell and keep it in your cabinet, though we should rather you would not take even one. But of all things do not destroy the nest. It is too bad. We have seen pretty good boys do it sometimes, but it was only because they had not been properly instructed. A boy who would break up a bird's nest, after his mind had been led to think of it as he should by the teachings of a kind-hearted father or mother, or teacher, we should be afraid, would do worse things when he grows up. We hope our boy and girl readers will never be cruel to any living thing. There is a meaning also in these two cuts coming together. They signify that if you destroy the birds, the insects will destroy the fruit. There is not the least doubt

but that God designed that the birds should live on insects, and by devouring them in great numbers, they prevent their increasing to such an extent as to destroy the fruits.

The third cut represents Egyptian wheat, spoken of as corn in the Bible. If you will turn to the place where the fat and lean kine are spoken of, you will find something said about seven ears growing on one stalk. It was not Indian corn, but just such wheat as you see above. Wheat in England is called corn, and the great Exchange in London, in Mark Lane, where immense quantities of wheat are bought and sold, is called the Corn Exchange. If it rains in that country when the wheat is ripe for harvesting, you will hear the farmers say, "This will be bad for the corn." To an American there it sounds oddly enough, as he knows that the climate in that country is too cool and damp to raise the least of what we call corn.

If any one of the children will send us a description of the *bread fruit*, what climate it grows in, its use as food, whether to be cooked, if so how, &c., we will illustrate the bread fruit in our next by an engraving, showing it as it appears when growing on the tree.

By the way, we should like it, if the children would, once in a while, review the lessons we gave them in back numbers, say in October, November and December last.

Those compositions that we spoke of once, send them on; we will read them with real pleasure, and if any one is first rate we will publish it in the children's corner.

BUSINESS DIRECTORY, TERMS, ETC.

THE AMERICAN FARMERS' MAGAZINE is the result of an earnest desire, on the part of its Editor, to furnish a journal of AGRICULTURE, AND OTHER BRANCHES OF RURAL ECONOMY, of an elevated character, national in its spirit, entertaining, *instructive*, and reliable, at a price somewhat lower than the wealthy and liberal farmer would demand, and such as to bring it fairly within the means of all intelligent family circles.

Its success hitherto confirms our belief that it is what the farmers of this country want, and encourages us to renewed efforts to extend its circulation. The price is $2 a year to single subscribers; $1.50 to clubs of from four to nine; **$1.25 to clubs of from ten to twenty; AND $1 TO CLUBS OF TWENTY AND UPWARDS.**

Clergymen, of all denominations, who cultivate a piece of land, and post-masters, who are also farmers, and desire the work for themselves, are invited to order this work at the lowest club price, $1, payment as in all other cases to be in advance.

Individuals so situated that they can not well club with others, yet desiring to economize, shall receive the work seven months for $1; fifteen months for 2; and two years for $3.

Any person is hereby authorized to become an agent for the work on the following conditions;—he may receive subscriptions at the foregoing rates; send us $1, current money, for each subscriber, with the name and post-office address plainly written, reserving the balance as compensation; and on receipt of the same, we will send the work one year, addressed to each subscriber.

It will be seen by the above that we have put it in the power of nearly all who desire it, to get this work for $1; and yet those who are at all aware of the expense of publication, must perceive that it can not be afforded at that, but with a very large circulation, and hardly then.

Able farmers, therefore, who appreciate our object, which they can not but regard as a generous one, will do us the favor to advance according to our programme of prices, and to favor the circulation of the work in their neighborhood.

Money may be sent at our risk if enclosed with suitable precautions.

Address J. A. NASH,
7 Beekman St., N. Y.

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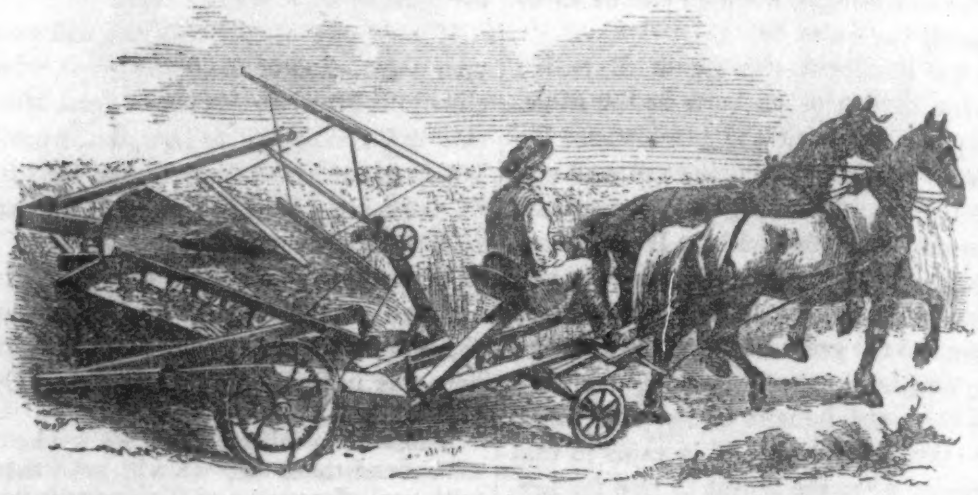

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JUST published and for sale by A. O. MOORE, No. 140 Fulton St., N. Y., and STARR & CO., 4 Main St., New-London, Conn., the above valuable work, containing plain, practical directions for Planting, Budding, Grafting, Pruning, Training, and Dwarfing the Pear-Tree; also instructions relating to the Propagation of new varieties, Gathering, Preserving, and Ripening the fruit; together with valuable hints in regard to the Locality, Soil, and Manures required for, and best arrangement of the Trees in an Orchard, both on the Pear and Quince stocks, and a List of the most valuable varieties for Dwarf or Standard Culture, accurately described and truthfully delineated by numerous beautifully colored engravings.

The above work, beautifully illustrated, should have a place in every family where a taste for good fruit prevails in all its choice varieties.

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